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CURRENT SERIAL RECORDS

**NATIONAL  
BRUCELLOSIS  
COMMITTEE**

and  
**progress report**  
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**COOPERATIVE STATE-FEDERAL  
BRUCELLOSIS ERADICATION PROGRAM**



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The tables are reproduced essentially as they were supplied by the writer of each paper.

Issued September 1967

The annual meeting of the National Brucellosis Committee was held in Des Moines, Iowa, on February 21, 1967, to review progress and to recommend improved procedures for the eradication of brucellosis from animals and man.

The proceedings of this meeting are published jointly with the Progress Report of the Cooperative State-Federal Brucellosis Eradication Program in order to consolidate information pertaining to the brucellosis eradication effort.

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# 1967 Proceedings of the National Brucellosis Committee and Progress Report of the Cooperative State-Federal Brucellosis Eradication Program

## THE COOPERATIVE STATE-FEDERAL BRUCELLOSIS ERADICATION PROGRAM, A Progress Report

by  
Oral D. Corson<sup>1</sup>

Progress is a word of several meanings. It can mean anything from "development" to "improvement" to "being continued toward completion." With regard to the brucellosis program all definitions currently apply. I would like to quote from the report given to this organization in 1956 by A. K. Kuttler. He said, "When brucellosis has been eradicated it will stand as one of the greatest accomplishments in the long and successful campaigns to control or eradicate communicable diseases of domestic animals, because it was more widespread at the beginning of the campaign than any other disease of animals which has thus far been brought under control or eradicated." He also said in the same report, "With the almost complete change in the clinical picture of brucellosis from storms of abortions and other serious losses, to a disease which is now causing fewer and fewer abortions, there is real danger of complacency."

Both of these quotes from Dr. Kuttler's report are still appropriate. I believe there should be no question that the eradication of this disease will certainly stand as one of the greatest of accomplishments, but we must certainly guard against complacency or time will run out, and the accomplishment will be that of control, a far less desirable end point for this program than that of eradication, to which all who came before us in this organization and those of us here now, are dedicated. It must distress us all to know that we still have some counties where there is no organized program and that progress in these areas must still be defined as developmental. In 1967, "improvement" and "being continued toward completion" have a much better connotation.

### Certified Brucellosis-Free Areas

Reporting now in the reverse order of the various definitions or progress which I gave you, it is encouraging to know that as of December 31, 1966, 10 States plus the Virgin Islands are certified bovine brucellosis free, Massachusetts, Nevada, and Washington being added during the year. In addition, there are 573 counties with a free status in 20 other States plus Puerto Rico. A year ago there were 7 States plus the Virgin Islands certified free and 405 counties in 21 other States plus Puerto Rico with a free status.

Significant geographic blocks of counties are now certified free. The quality of the work done in these counties is worthy of praise. A quantity of work has also been accomplished with perseverance and dedication to responsibility by all members of the livestock industry in these areas.

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<sup>1</sup> Chief Staff Veterinarian, Brucellosis Eradication, Animal Health Division, Agricultural Research Service, U.S. Department of Agriculture.



## Modified Certified Brucellosis Areas

Iowa was the only State that was recognized as modified certified during the year. However, in the 12 States that do not have this status the number of counties certified increased from 523 to 583 and the number of counties with an organized program as of December 31, increased from 123 in 1965 to 192 in 1966. This leaves a balance of 147 counties noncertified and without an organized program in 5 of the 12 noncertified States.

## Brucellosis Milk Ring Test

We have long recognized our dependency on the brucellosis ring test (BRT) for surveillance of brucellosis in dairy herds. Still, not all States conduct this test at the desirable frequency. Twenty-eight States plus Puerto Rico and the Virgin Islands collect milk samples 4 times per year, 19 States 3 times a year, and 3 States only 2 times a year. There also remains a problem of persuading all States to recognize the need for testing, immediately, those herds that show a suspicious BRT. There seems to be no logical reason why there should be delay in testing a herd when it is suspected of having brucellosis. Another problem associated with BRT is that of having all milk, in which preservatives are used, being preserved with mercuric chloride. Other preservatives are known to frequently cause results that interfere in reading a true test.

As to the problem reported last year concerning the dilution factor associated with milk samples from large bulk tanks, we believe that the study conducted in California has provided a solution. Adjustments in procedures have been made for conducting the ring test of these kinds of samples.

## Market Cattle Testing

The market cattle testing (MCT) program continued to expand during the past year. There was a 14.2 percent increase in the number of tags applied and 2.2 percent increase in the number of samples collected.

Forty-four thousand and forty-one reactors were traced to 13,914 herds of origin resulting in 23,566 reactors being removed when these herds were tested.

To improve the MCT program a new two-color backtag has been developed. The tag is yellow on one side and white on the other, with the same number being printed on both sides. The Division plans to furnish the tag to all markets without cost and to encourage the market operators to use the tags as a general sales tag. With such widespread use of this tag we hope to get large numbers of animals identified. When the tag is applied we will use the yellow side up on dairy animals and others from which no blood sample is desired and the white side up on beef breeding cattle. We anticipate that the MCT program will now develop more nearly to the point where we will get the broad coverage so necessary to the success of the brucellosis eradication program.

## Problem Herd Program

The Division now has nine epidemiologists who have advanced degrees--one is assigned as a staff epidemiologist and three others are assigned as regional epidemiologists. Five are working with problem herds as full-time field epidemiologists. In addition, there are five men presently in graduate school who will soon be available for field assignments. There are also 25



men in 26 States who are specialists in brucellosis and who have had special training in epidemiology. An additional 10 to 15 veterinarians will receive special training this year to become specialists in those States where the need is greatest. This corps of epidemiologists will greatly strengthen our ability to deal with the unusual problems encountered with brucellosis.

### Brucellosis Card Test

Another favorable development occurred during the past year. At the last meeting of the USLSA, it was recommended that the card test be given full recognition as a diagnostic test. The Department has given such recognition, and we are pleased to report that the test is receiving wide acceptance. The card test is being used extensively for testing range cattle in many of the non-certified areas. Reports as to its value are overwhelmingly in favor of it. As I am sure you know, this is an on-the-farm or on-the-ranch test, if it is so desired, which is a big plus for it. In addition, the test is read as either negative or positive. There are no suspect titers. This you will recognize as having a certain special appeal.

### Vaccination

Calf vaccination activity did not change significantly during the last year. We did not reduce the numbers vaccinated in the free areas as much as would have been desirable nor did the numbers increase in those areas of the country where infection is still high. It is increasingly difficult to justify the cost of supporting vaccination in Certified Brucellosis-Free States. Also, from a program standpoint, we are much concerned about the problem of singleton vaccinated reactors in otherwise negative herds, especially in the free areas.

At the last meeting of the USLSA, following the report given concerning the advantages of vaccinating calves at younger than 4 months of age, it was recommended that the lower age limit for official vaccination be reduced to 3 months. We anticipate that the regulations will soon be amended to this effect. If owners will take advantage of the knowledge that vaccinating their calves at an early age will, in many cases, relieve the problem of residual blood titers, many of the difficulties associated with vaccine will be eliminated.

### Swine Brucellosis Program

The continuing problem of getting the swine producer to recognize the costs and hazards of living with swine brucellosis is still with us. The loss of certain foreign markets for pork products has stimulated the meatpacking industry to encourage producers to eradicate this disease; however, as of this reporting date, there has been little other evident concern.

The number of validated herds increased from 2,115 to 2,350 during the past year and the number of counties validated increased from 113 to 127. Nevada, Utah, and Vermont are validated States.

As was stated a year ago, we believe that the further development of the swine brucellosis program is dependent on the implementation of a swine brucellosis surveillance system which certainly must include practices incorporated in the market cattle testing program. A strengthening of State laws and regulations will be necessary along with a strengthening of the Federal regulations to govern the movement of breeding swine. And, of course, it will be necessary to have the funds to conduct the added activity associated with the eradication of brucellosis in swine.



We are appreciative of your past support in the efforts to eradicate brucellosis and look forward to the continuing help and encouragement that regularly comes from the National Brucellosis Committee.

## Status of Noncertified States

ALASKA: Few herds remain to be tested in Alaska. On January 4, 1967, Alaska was modified certified with the exception of three small islands. The primary problems in accomplishing this work are the weather and the distance between herds.

ALABAMA: In Alabama 63 counties have achieved modified certified status, three of which were certified during 1966. On December 31, 1966, area work was being conducted in the remaining four counties; however, two of these counties were certified during January 1967.

COLORADO: During the calendar year 1966, seven counties were added to the modified certified list of counties. On December 31, 1966, Colorado had four counties remaining to be certified. One of these was certified in January 1967.

FLORIDA: A marked increase in the effort of the Florida Brucellosis Eradication Program has been undertaken especially in the southern part of the State. Although only two counties were certified during 1966 and one more in January 1967, several more counties have shown an interest in becoming modified certified. Petitions for area work have been signed in 21 counties and area work is under way in several of these.

HAWAII: Three of the four areas of Hawaii are modified certified. The certification testing was completed in one area and additional work was done in the remaining area during 1966. It is expected that this county will be completed in the near future.

IOWA: Early in January 1966, the remaining nine counties of Iowa qualified as Modified Certified Brucellosis Areas. The State was recognized as having attained this status on January 11, 1966.

LOUISIANA: During the past 12 months, four additional counties were certified, bringing the total modified certified counties to 21. Area work was initiated in all of the remaining counties and the program is moving rapidly forward. In January the 22d county was certified.

MISSISSIPPI: In 1966 Mississippi added 3 counties and continued area testing work in all of the remaining 29 counties. However, during January 1967, 2 additional counties were certified, bringing the total modified certified counties to 55.

NEBRASKA: Of the 93 counties in Nebraska, 67 are modified certified. During 1966, two counties attained certified status and one other county did not meet the requirements for recertification. Area work is in progress in the remaining 26 noncertified counties, of which 13 counties initiated the program in 1966.

OKLAHOMA: There are 35 counties in Oklahoma presently modified certified, 13 of which were completed during 1966. One additional county started an area test program, bringing the current total to 27.



SOUTH DAKOTA: South Dakota initiated the brucellosis eradication program in 19 new counties during the past 12 months. Four of these areas were modified certified during 1966 and two more in January 1967. South Dakota now has 44 certified counties and 14 area test counties.

TEXAS: During 1966, five counties achieved modified certified status. However, 14 counties did not meet the recertification requirements. In January 1967, an additional eight counties were removed from the list of certified counties. Presently, Texas has 118 modified certified counties.

WYOMING: Wyoming certified its 22d county during 1966. Area work was initiated in the last county on November 1, 1966.

## SUMMARY OF BOVINE BRUCELLOSIS ERADICATION ACTIVITIES IN COOPERATION WITH THE STATES,

CALENDAR YEAR 1965

State or Territory	Brucellosis Blood Tests				Brucellosis Ring Tests			Calves vaccinated
	Cattle tested	Reactor cattle			Herd tests	Suspicious herd tests		
	Number	Number	Percent 1/	Percent 2/	Number	Number	Percent	Number
Alabama	480,734	12,014	2.50	2.10	4,289	117	2.7	125,992
Alaska	1,154	1	0.09	0.05	39	0	0.0	159
Arizona	44,833	117	0.26	0.14	1,025	17	1.7	11,866
Arkansas	275,965	3,471	1.26	1.00	14,648	132	0.9	124,356
California	254,389	1,102	0.43	0.11	18,429	536	2.9	424,140
Colorado	163,012	483	0.30	0.19	8,095	111	1.4	131,648
Connecticut	59,505	8	0.01	0.01	5,821	16	0.3	14,971
Delaware	22,548	41	0.18	0.11	1,419	9	0.6	2,961
Florida	249,831	3,673	1.47	1.06	1,981	384	19.4	139,592
Georgia	242,233	2,747	1.13	0.82	7,095	100	1.4	40,290
Hawaii	29,726	96	0.32	0.24	202	1	0.5	9,803
Idaho	106,454	424	0.40	0.19	31,080	170	0.5	168,349
Illinois	233,637	2,901	1.24	0.73	54,794	333	0.6	112,599
Indiana	213,531	873	0.41	0.20	52,421	351	0.7	66,663
Iowa	638,862	6,444	1.01	0.60	94,620	968	1.0	449,793
Kansas	261,170	3,555	1.36	0.66	41,419	348	0.8	363,776
Kentucky	224,141	3,436	1.53	0.95	80,121	1,661	2.1	74,812
Louisiana	396,072	8,998	2.27	1.78	4,877	234	4.8	99,491
Maine	46,053	32	0.07	0.02	6,422	17	0.3	15,417
Maryland	249,756	101	0.04	0.03	17,008	290	1.7	34,778
Massachusetts	45,546	84	0.19	0.07	7,268	28	0.4	13,047
Michigan	163,300	642	0.39	0.10	84,380	1,366	1.6	115,520
Minnesota	469,461	2,417	0.51	0.15	229,829	691	0.3	185,931
Mississippi	366,271	11,420	3.11	1.90	15,762	501	3.2	111,472
Missouri	511,155	2,328	0.46	0.30	79,876	785	0.9	394,424
Montana	147,748	302	0.20	0.18	8,766	20	0.2	290,772
Nebraska	305,767	1,296	0.42	0.25	55,529	321	0.6	389,247
Nevada	12,617	1	0.01	0.01	594	0	0.0	57,272
New Hampshire	51,498	27	0.05	0.03	4,013	31	0.8	9,778
New Jersey	60,657	55	0.09	0.04	5,991	82	1.4	12,377
New Mexico	58,852	200	0.34	0.33	1,451	234	16.1	16,916
New York	125,249	452	0.36	0.04	114,468	133	0.1	234,578
North Carolina	284,809	379	0.13	0.09	17,406	103	0.6	26,306
North Dakota	170,406	1,645	0.97	0.55	44,361	250	0.6	261,052
Ohio	246,324	802	0.33	0.15	94,041	798	0.8	77,934
Oklahoma	789,494	17,000	2.15	1.96	12,105	313	2.6	229,862
Oregon	146,083	275	0.19	0.11	13,496	137	1.0	123,297
Pennsylvania	592,763	440	0.07	0.03	85,895	166	0.2	132,520
Rhode Island	8,613	1	0.01	0.01	1,085	5	0.5	1,398
South Carolina	146,847	645	0.44	0.35	5,762	83	1.4	22,192
South Dakota	396,667	3,258	0.82	0.52	31,374	324	1.0	406,096
Tennessee	250,211	5,982	2.39	1.20	91,584	914	1.0	151,771
Texas	1,208,251	22,344	1.85	1.51	14,406	654	4.5	289,324
Utah	31,022	170	0.55	0.13	15,125	54	0.4	67,617
Vermont	34,744	20	0.06	0.01	18,498	13	0.1	36,681
Virginia	261,140	1,014	0.39	0.29	33,559	360	1.1	80,891
Washington	185,848	151	0.08	0.04	12,891	74	0.6	46,488
West Virginia	145,333	426	0.29	0.26	9,433	35	0.4	7,136
Wisconsin	289,741	228	0.08	0.01	251,232	318	0.1	516,498
Wyoming	51,112	126	0.25	0.17	2,872	9	0.3	177,696
Puerto Rico	291,842	1,572	0.54	0.43	2,402	162	6.7	6,231
Virgin Islands	2,729	0	0.00	0.00	0	0	0.0	0
TOTALS	12,045,506	126,219	1.05	0.53	1,811,259	14,759	0.8	6,903,780

1/ Percent of cattle infection, blood tests only.

2/ Percent of cattle infection calculated on the basis of total blood tests and actual number of individual BRT negative cattle.



## SUMMARY OF BOVINE BRUCELLOSIS ERADICATION ACTIVITIES IN COOPERATION WITH THE STATES,

CALENDAR YEAR 1966

State or Territory	Brucellosis Blood Tests				Brucellosis Ring Test			Calves vaccinated
	Cattle tested	Reactor cattle			Herd tests	Suspicious herd tests		
	Number	Number	Percent 1/	Percent 2/	Number	Number	Percent	Number
Alabama	377,263	7,634	2.02	1.63	4,333	87	2.0	100,989
Alaska	622	0	0.00	0.00	167	0	0.0	72
Arizona	36,807	202	0.55	0.24	937	6	0.6	12,901
Arkansas	246,377	2,584	1.05	0.86	13,888	82	0.6	111,256
California	199,753	838	0.42	0.09	16,162	300	1.9	400,169
Colorado	128,442	545	0.42	0.28	9,373	76	0.8	132,178
Connecticut	42,702	2	0.01	0.01	5,601	3	0.1	14,612
Delaware	20,709	17	0.08	0.05	1,399	14	1.0	2,390
Florida	393,008	7,032	1.79	1.48	1,901	303	15.9	143,116
Georgia	284,711	3,455	1.21	0.93	6,444	74	1.1	41,924
Hawaii	31,246	75	0.24	0.18	197	0	0.0	10,782
Idaho	93,906	545	0.58	0.24	36,343	152	0.4	174,333
Illinois	286,826	2,756	0.96	0.63	48,482	351	0.7	100,008
Indiana	190,944	678	0.34	0.18	43,635	232	0.5	64,436
Iowa	473,620	3,863	0.82	0.42	96,860	833	0.9	415,124
Kansas	249,933	3,278	1.31	0.67	36,145	214	0.6	350,854
Kentucky	234,079	3,358	1.43	0.77	72,452	1,061	1.5	60,991
Louisiana	582,383	17,578	3.02	2.45	4,596	128	2.8	92,088
Maine	34,339	14	0.04	0.01	5,879	6	0.1	15,493
Maryland	178,929	53	0.03	0.02	14,410	164	1.1	25,235
Massachusetts	26,284	7	0.03	0.01	6,752	10	0.1	12,057
Michigan	177,550	438	0.25	0.08	74,437	995	1.3	116,735
Minnesota	401,909	1,494	0.37	0.10	218,037	317	0.1	187,813
Mississippi	491,757	18,079	3.68	2.67	13,405	332	2.5	127,254
Missouri	396,354	2,831	0.71	0.42	75,423	1,086	1.4	345,922
Montana	130,380	291	0.22	0.19	7,670	21	0.3	281,263
Nebraska	299,533	1,533	0.51	0.33	42,798	122	0.3	428,830
Nevada	29,288	25	0.09	0.07	481	0	0.0	44,057
New Hampshire	46,320	6	0.01	0.01	1,946	16	0.8	8,627
New Jersey	75,324	32	0.04	0.02	5,113	21	0.4	11,090
New Mexico	54,275	213	0.39	0.36	1,237	138	11.2	14,318
New York	95,916	140	0.15	0.01	109,015	93	0.1	214,755
North Carolina	270,101	394	0.15	0.09	21,661	90	0.4	30,565
North Dakota	129,906	1,075	0.83	0.37	38,277	114	0.3	274,228
Ohio	192,432	461	0.24	0.12	80,516	437	0.5	74,305
Oklahoma	881,363	15,408	1.75	1.65	7,722	149	1.9	118,293
Oregon	118,779	219	0.18	0.10	11,809	95	0.8	112,369
Pennsylvania	636,308	479	0.08	0.03	81,560	94	0.1	128,694
Rhode Island	7,503	0	0.00	0.00	1,054	6	0.6	1,151
South Carolina	130,939	468	0.36	0.27	4,862	17	0.3	20,808
South Dakota	386,724	2,053	0.53	0.33	31,605	246	0.8	453,095
Tennessee	237,497	4,717	1.99	1.02	82,358	689	0.8	53,149
Texas	1,101,569	20,733	1.88	1.47	13,515	476	3.5	287,018
Utah	47,073	140	0.30	0.09	13,922	26	0.2	71,060
Vermont	23,976	7	0.03	0.01	18,904	8	0.0	9,028
Virginia	252,208	393	0.16	0.09	39,665	224	0.6	76,401
Washington	135,119	151	0.11	0.05	17,418	138	0.8	34,008
West Virginia	108,618	237	0.22	0.18	9,005	31	0.3	8,064
Wisconsin	277,724	84	0.03	0.01	224,751	182	0.1	474,977
Wyoming	59,858	87	0.15	0.11	2,214	5	0.2	163,505
Puerto Rico	253,528	1,024	0.40	0.30	6,658	202	3.0	1,003
Virgin Islands	1,118	0	0.00	0.00	0	0	0.0	0
TOTALS	11,563,832	127,706	1.10	0.57	1,682,994	10,466	0.6	6,483,393

1/ Percent of cattle infection, blood tests only.

2/ Percent of cattle infection calculated on the basis of total blood tests and actual number of individual BRT negative cattle.

# SUMMARY OF BRUCELLOSIS ERADICATION ACTIVITIES IN COOPERATION WITH THE VARIOUS STATES UNDER THE MARKET CATTLE TESTING PROGRAM

ANN FORM 1-48



# SUMMARY OF BRUCellosis ERADICATION ACTIVITIES IN COOPERATION WITH THE VARIOUS STATES UNDER THE MARKET CATTLE TESTING PROGRAM

CALENDAR YEAR 1966

STATE OR TERRITORY	BACK TAGGING										LABORATORY TESTS										TESTS OF HERDS OF ORIGIN OF REACTORS										COWS FROM WHICH REACTORS OBTAINED
	TAGS APPLIED AT					TAGS APPLIED BY					COWS ORIGINATING IN THIS STATE										INFECTED					NEGATIVE					
	RANCH OR FARM	PUBLIC STOCK YARDS	OTHER LIVESTOCK MARKETS	SLAUGHTER ESTABLISHMENTS	OTHER	TOTAL TAGS APPLIED	OWNER'S OWNED CATTLE	DEALER	MARKET EMPLOYEES	REGULATORY PERSONNEL	OTHER	TESTING LABS IN THIS STATE	TOTAL TESTS	NEGATIVE	SUSPECT	REACTOR	TOTAL	INFECTION RATE PER 10,000 ANIMALS	HERDS	ANIMALS	HERDS	ANIMALS	HERDS	ANIMALS	HERDS	ANIMALS	HERDS	ANIMALS			
Alabama	-	-	70,909	73	-	70,982	-	-	63	67,533	3,406	111,429	17,064	128,493	1,585	1,511	128,493	117.8	237	9,008	1,053	382	8,640	6,683	-	-	-	-	-		
Alaska	1,708	26,006	52,912	-	-	72,091	1,708	-	-	70,383	-	11,381	6,281	17,665	323	3	17,665	10.8	2	2	2	3	2,105	21,103	-	-	-	-	-		
Arizona	2,889	-	73,819	-	-	76,708	26,296	-	-	50,412	-	118,318	2,675	120,993	1,173	160	171,362	62.4	212	8,152	662	593	11,001	22,118	-	-	-	-	-		
California	-	-	-	-	-	-	-	-	-	-	-	86,321	2,301	88,622	3,071	160	91,628	17.5	20	2,563	110	92	10,083	22,310	-	-	-	-	-		
Colorado	2,002	27,974	74,998	-	-	104,974	2,002	-	74,050	28,922	-	31,112	11,722	42,834	632	86	42,834	20.1	11	1,733	99	27	2,349	8,600	-	-	-	-	-		
Connecticut	1,106	-	6,337	-	-	7,443	-	-	6,337	1,106	-	197	1,239	1,436	15	6	1,436	11.8	1	1	1	-	-	5,211	-	-	-	-	-		
Delaware	1,107	-	89,295	-	-	90,402	1,107	-	-	88,295	-	168,007	6,231	174,238	1,911	1,718	174,238	52.3	53	2,557	332	15	1,923	4,164	-	-	-	-	-		
Florida	-	-	96,165	1,238	93	97,396	-	-	-	96,165	1,231	-	-	171,383	1,160	1,160	171,383	52.3	116	6,001	611	45	6,143	17,631	-	-	-	-	-		
Georgia	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Idaho	96	-	82,290	2,872	-	85,162	96	-	11,212	68,078	2,872	16,380	28,036	44,416	298	20	44,416	16.3	2	101	35	7	913	-	-	-	-	-	-	-	-
Illinois	18	70,315	74,237	2,817	-	147,387	18	165	37,338	109,049	-	72,032	37,480	109,512	1,056	12	109,512	89.0	88	2,527	311	38	1,005	22,004	-	-	-	-	-	-	-
Indiana	459	42,008	66,611	1,931	-	110,661	459	20	68,575	42,008	-	147,870	37,615	185,485	81,835	3,117	233	85,485	27.3	19	1,691	84	113	2,183	-	-	-	-	-	-	-
Iowa	-	3,429	178,534	16,216	32	198,080	-	-	3,429	194,651	-	110,402	25,152	135,554	2,672	1,303	135,554	96.0	88	2,648	376	359	8,999	15,146	-	-	-	-	-	-	-
Kansas	112	40,066	235,022	-	-	275,088	112	-	150,962	2,402	-	89,198	71,990	161,188	5,497	1,270	161,188	78.8	222	10,983	1,007	351	11,995	30,133	-	-	-	-	-	-	-
Kentucky	12	74,697	183,058	5,067	-	262,812	12	-	76,711	252,066	-	126,321	84,081	210,402	1,019	1,330	210,402	117.8	110	1,070	5,834	621	11,995	31,329	-	-	-	-	-	-	-
Louisiana	-	-	76,111	-	-	76,111	-	-	76,111	-	-	26,367	21,269	47,636	6,619	1,130	47,636	26.1	1,330	78,341	5,834	1,179	1,179	16,805	-	-	-	-	-	-	-
Maine	22,911	73	27,169	313	-	29,153	22,911	-	32,251	17,417	-	31,313	19,510	50,823	664	52	50,823	6.6	-	-	-	-	22	21,381	-	-	-	-	-	-	-
Maryland	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Massachusetts	-	-	925	-	-	925	-	-	925	-	-	1,380	1,503	5,883	1,200	2	5,883	3.4	-	-	-	1	723	835	-	-	-	-	-	-	-
Michigan	267	18,505	86,728	318	-	105,818	267	30	86,430	306	-	128,895	2,980	55,875	4,971	258	55,875	145.2	3	117	16	13	4,529	20,519	-	-	-	-	-	-	-
Minnesota	-	230,423	11,700	-	-	242,123	-	-	6,170	15,380	-	12,194	10,682	22,876	821	160	22,876	12.0	3	137	33	66	2,365	31,129	-	-	-	-	-	-	-
Mississippi	11	130,117	97,711	1,214	-	228,842	-	-	1,159	97,166	-	181,391	15,538	196,929	3,290	3,901	196,929	39.7	1,222	55,098	291	1,179	31,820	59,105	-	-	-	-	-	-	-
Missouri	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Montana	149	11,350	110,704	4,550	-	127,604	149	-	159,453	-	-	57,902	12,286	100,188	97,297	3,088	100,188	14.6	13	1,355	107	62	3,575	7,805	-	-	-	-	-	-	-
Nebraska	1,161	7,914	163,219	24	-	172,668	1,161	-	4,162	167,071	-	115,117	12,813	127,930	1,039	380	127,930	30.5	30	1,618	95	86	4,653	58,220	-	-	-	-	-	-	-
Nevada	3,510	-	5,523	-	-	8,033	3,510	-	-	3,523	-	3,595	1,669	5,264	3	2	5,264	0.0	1	119	12	2	365	911	-	-	-	-	-	-	-
New Hampshire	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Jersey	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Mexico	47	25,560	3,978	-	22	29,607	47	-	29,405	-	-	7,345	16,589	16,347	178	178	16,589	38.6	5	742	24	12	806	9,602	-	-	-	-	-	-	-
New York	60	633	3,275	531	-	4,439	60	-	3,579	312	-	1,137	3,281	3,093	166	2	3,281	67.1	8	199	67	61	1,705	6,898	-	-	-	-	-	-	-
North Carolina	26	88,115	11,008	179	-	99,312	26	-	19,782	68,377	-	84,955	11,026	95,981	923	112	95,981	11.3	38	1,098	291	1,179	4,838	13,161	-	-	-	-	-	-	-
North Dakota	73	169,283	121,008	4,68	122	395,194	73	-	16,116	84,008	-	35,736	59,076	94,812	1,826	287	94,812	30.3	3	3	3	3	3	3	-	-	-	-	-	-	-
Ohio	-	4,5780	46,209	304	-	51,493	-	-	-	35,073	-	29,415	12,595	42,010	551	3	42,010	2.1	3	3	3	3	3	3	-	-	-	-	-	-	-
Oklahoma	310	78,973	235,238	13,000	-	317,211	310	-	301,120	26,091	-	280,795	69,721	350,519	6,673	166	350,519	165.4	211	9,243	912	149	11,750	25,088	-	-	-	-	-	-	-
Oregon	-	-	102,710	5,706	-	108,416	-	-	102,710	5,706	-	108,416	24,025	111,489	946	380	111,489	7.5	12	1,097	50	108	3,096	13,153	-	-	-	-	-	-	-
Pennsylvania	17	13,598	178,832	11,881	-	194,309	17	-	193,511	1,329	-	116,118	11,967	131,085	3,328	9	131,085	20.4	-	-	-	188	5,223	12,167	-	-	-	-	-	-	-
Rhode Island	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Carolina	-	-	45,432	-	-	45,432	-	-	45,432	-	-	39,208	9,336	48,544	591	1	48,544	27.0	13	613	94	76	2,501	11,553	-	-	-	-	-	-	-
South Dakota	1,661	10,485	114,108	2,944	-	128,541	1,661	-	109,186	-	-	14,755	72,887	101,642	2,211	383	101,642	37.7	56	2,871	892	106	4,319	15,106	-	-	-	-	-	-	-
Tennessee	160	124,637	615,370	13,152	-	743,189	160	-	262,889	-	-	101,769	22,118	123,887	3,131	117	123,887	132.2	272	8,821	787	275	16,752	49,213	-	-	-	-	-	-	-
Texas	2,174	35,777	42,464	466	-	84,174	2,174	-	84,174	877	-	22,944	2,405	25,349	174	1	25,349	22.5	6	8,926	36	19	1,069	58,636	-	-	-	-	-	-	-
Utah	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Vermont	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Virginia	-	-	106,154	2,359	-	108,513	-	-	115,194	2,359	-	17,912	34,271	52,187	2,2393																

## BRUCELLOSIS TESTS OF GOATS AND SWINE, CALENDAR YEAR 1965

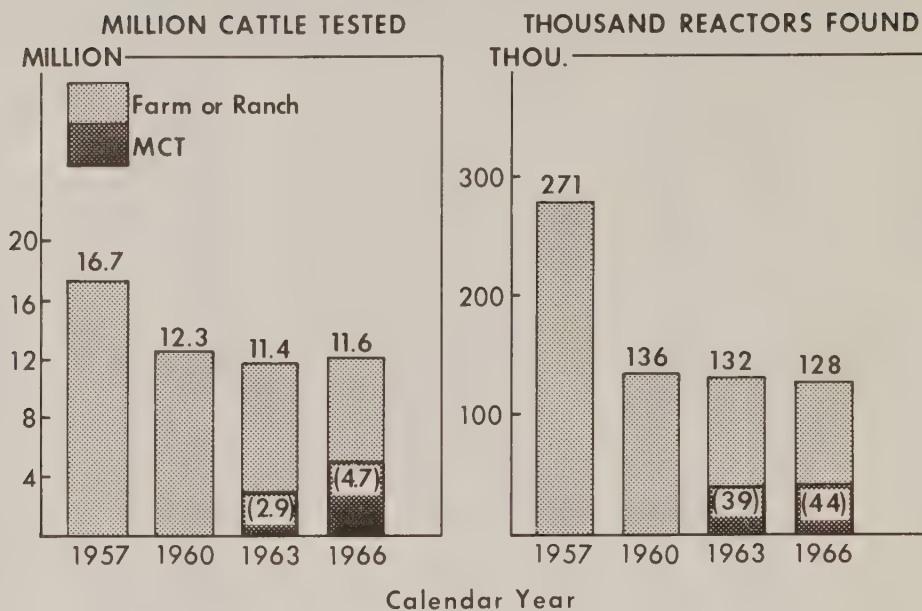
State or Territory	Goats					Swine			
	Tested		Infected			Tested		Infected	
	Lots	Animals	Lots	Animals	Suspects	Lots	Animals	Lots	Animals
	Number	Number	Number	Number	Number	Number	Number	Number	Number
Alabama -----	5	30	--	--	--	292	2,538	29	76
Alaska -----	8	33	--	--	--	1	11	--	--
Arizona -----	125	660	2	2	24	19	377	--	--
Arkansas -----	10	66	--	--	2	2,089	3,110	88	110
California -----	207	2,501	1	4	11	1,496	16,507	47	894
Colorado -----	131	345	1	1	--	66	2,804	2	6
Connecticut ----	3	19	--	--	--	--	--	--	--
Delaware -----	2	14	--	--	--	7	141	--	--
Florida -----	58	306	--	--	3	297	3,536	45	151
Georgia -----	8	48	--	--	--	456	7,125	27	150
Hawaii -----	23	618	2	7	21	525	7,683	36	289
Idaho -----	14	50	--	--	--	82	622	12	17
Illinois -----	54	228	--	--	1	1,955	18,399	10	18
Indiana -----	51	198	--	--	--	3,008	30,709	23	36
Iowa -----	19	56	--	--	--	26,602	187,548	967	1,678
Kansas -----	34	95	1	1	7	248	3,480	58	202
Kentucky -----	7	35	--	--	--	473	3,678	98	244
Louisiana -----	13	48	--	--	1	140	1,343	24	61
Maine -----	24	158	--	--	--	213	2,723	41	952
Maryland -----	26	389	1	73	3	73	1,332	3	3
Massachusetts ---	62	606	1	1	3	106	2,050	13	202
Michigan -----	37	231	--	--	1	199	2,569	2	3
Minnesota -----	18	47	--	--	--	897	7,420	3	20
Mississippi -----	7	22	--	--	--	77	1,261	18	29
Missouri -----	77	455	--	--	--	1,569	15,508	80	253
Montana -----	4	6	--	--	2	48	800	--	--
Nebraska -----	13	48	1	1	--	561	7,125	5	5
Nevada -----	12	59	--	--	--	108	610	4	11
New Hampshire ---	21	86	--	--	1	--	--	--	--
New Jersey -----	121	920	--	--	9	19	356	3	28
New Mexico -----	29	86	2	2	4	17	133	3	14
New York -----	138	587	--	--	7	--	--	--	--
North Carolina --	13	199	--	--	--	300	4,583	10	17
North Dakota ---	--	--	--	--	--	59	307	--	--
Ohio -----	64	298	--	--	--	969	7,738	4	31
Oklahoma -----	53	128	--	--	--	384	2,123	1	1
Oregon -----	81	584	1	1	2	34	342	--	--
Pennsylvania ---	154	1,106	--	--	--	201	1,747	--	--
Rhode Island ---	16	65	1	11	1	5	146	--	--
South Carolina --	6	9	--	--	--	83	1,128	7	19
South Dakota ---	1	3	--	--	--	467	3,404	6	6
Tennessee -----	6	17	--	--	--	159	1,324	--	--
Texas -----	16	94	--	--	--	35	374	1	1
Utah -----	29	185	4	111	9	1,897	4,915	2	2
Vermont -----	5	32	--	--	--	13	55	--	--
Virginia -----	41	130	--	--	14	161	2,209	19	103
Washington -----	53	260	--	--	--	16	111	--	--
West Virginia ---	4	9	--	--	--	6	83	--	--
Wisconsin -----	25	617	--	--	--	1,147	22,751	2	4
Wyoming -----	8	27	--	--	1	50	492	5	9
Puerto Rico ----	87	282	--	--	--	8,390	24,043	54	188
Virgin Islands --	20	69	--	--	--	100	323	--	--
Total -----	2,043	13,164	18	215	127	56,119	409,696	1,752	5,833
Percent infected			0.88	1.63	0.96			3.12	1.42



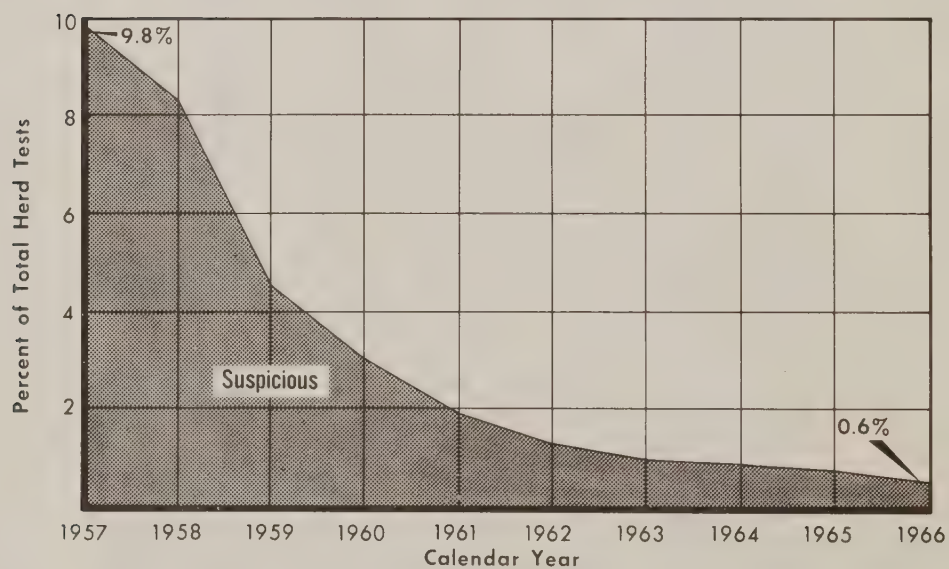
## BRUCELLOSIS TESTS OF GOATS AND SWINE, CALENDAR YEAR 1966

State or Territory	Goats					Swine			
	Tested		Infected			Tested		Infected	
	Lots	Animals	Lots	Animals	Suspects	Lots	Animals	Lots	Animals
	Number	Number	Number	Number	Number	Number	Number	Number	Number
Alabama -----	--	--	--	--	--	424	3,777	47	145
Alaska -----	1	7	--	--	--	4	128	--	--
Arizona -----	104	519	1	2	13	38	1,101	--	--
Arkansas -----	7	71	--	--	--	149	859	25	68
California -----	239	1,170	1	1	9	1,321	19,902	25	568
Colorado -----	167	1,965	4	4	7	76	4,268	--	--
Connecticut -----	4	13	--	--	--	1	12	--	--
Delaware -----	3	18	--	--	--	5	54	--	--
Florida -----	31	196	--	--	--	325	3,105	54	122
Georgia -----	9	28	--	--	--	619	8,949	44	257
Hawaii -----	11	158	3	4	7	522	7,915	17	107
Idaho -----	17	37	2	2	1	81	521	7	9
Illinois -----	68	315	2	2	1	6,306	46,004	44	122
Indiana -----	58	308	--	--	3	2,945	34,249	32	43
Iowa -----	10	34	--	--	1	29,916	207,619	766	1,122
Kansas -----	29	74	1	1	3	294	3,625	57	119
Kentucky -----	11	66	--	--	--	639	4,703	209	492
Louisiana -----	4	8	--	--	--	262	2,323	33	141
Maine -----	13	100	--	--	--	340	3,292	27	403
Maryland -----	30	437	--	--	5	166	2,420	8	24
Massachusetts ---	51	294	--	--	4	116	2,401	9	128
Michigan -----	43	165	--	--	1	86	944	1	1
Minnesota -----	22	96	--	--	1	919	10,529	5	7
Mississippi -----	7	25	--	--	1	129	3,205	20	140
Missouri -----	46	206	--	--	1	1,736	17,491	75	568
Montana -----	6	34	--	--	1	93	954	1	2
Nebraska -----	9	35	--	--	--	609	7,460	10	10
Nevada -----	12	25	--	--	--	25	269	--	--
New Hampshire ---	24	96	--	--	--	--	--	--	--
New Jersey -----	146	516	--	--	--	26	841	--	--
New Mexico -----	27	122	--	--	4	18	95	1	3
New York -----	60	411	--	--	3	--	--	--	--
North Carolina --	15	92	--	--	--	353	8,383	46	217
North Dakota ----	2	22	--	--	--	62	269	1	1
Ohio -----	82	572	--	--	8	1,065	8,217	4	20
Oklahoma -----	67	178	--	--	2	532	3,307	19	27
Oregon -----	86	590	--	--	10	32	435	--	--
Pennsylvania ----	158	1,141	--	--	1	217	2,133	3	68
Rhode Island ----	9	60	--	--	3	3	111	--	--
South Carolina --	9	59	--	--	--	112	1,641	7	129
South Dakota ----	5	11	--	--	--	464	4,439	3	5
Tennessee -----	8	20	--	--	--	194	1,733	1	21
Texas -----	25	680	--	--	--	55	645	1	4
Utah -----	25	171	3	6	6	1,888	4,097	1	1
Vermont -----	2	15	--	--	--	146	1,404	2	7
Virginia -----	32	92	--	--	6	156	2,354	8	69
Washington -----	103	483	--	--	1	342	1,370	2	10
West Virginia ---	6	6	--	--	--	12	203	--	--
Wisconsin -----	27	981	--	--	--	1,273	9,357	6	12
Wyoming -----	6	13	--	--	--	26	220	4	20
Puerto Rico ----	34	243	--	--	--	6,974	32,018	112	686
Virgin Islands --	17	102	--	--	--	87	306	--	--
Total -----	1,987	13,086	17	22	103	62,183	481,757	1,737	5,906
Percent infected			0.86	0.17	0.79			2.79	1.22

## BLOOD TESTING : CATTLE



## MILK RING TESTING: HERD TESTS

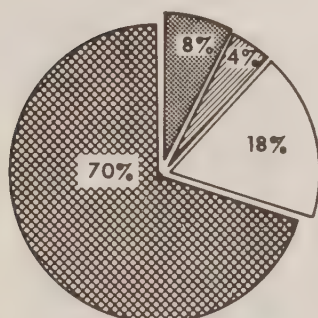




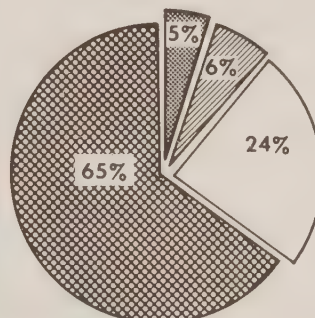
## COUNTY CERTIFICATION STATUS

COOPERATIVE STATE-FEDERAL BRUCELLOSIS ERADICATION PROGRAM



DEC. 31, 1965



DEC. 31, 1966

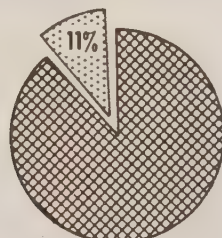


 Certified-Free  
 Modified Certified

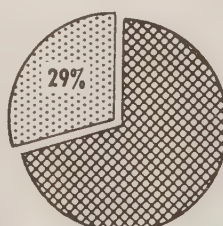
 Area Work in Progress  
 Individual Herd Participation

## COUNTY CERTIFICATION STATUS

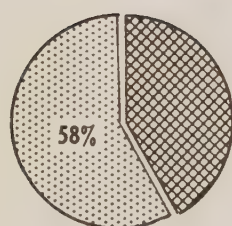
Cooperative State-Federal Brucellosis Eradication Program



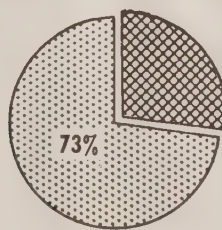
1954



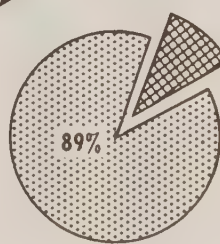
1957



1959



1961



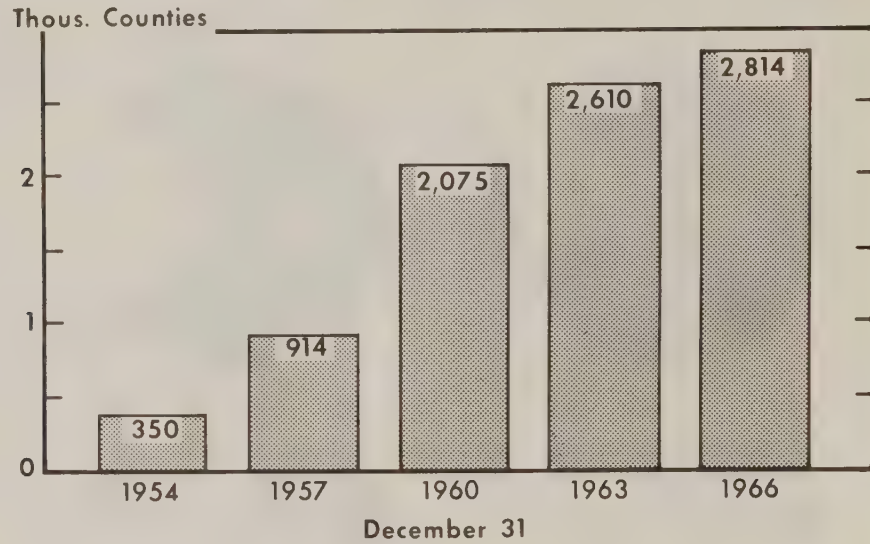
1966

 Certified     Not Certified

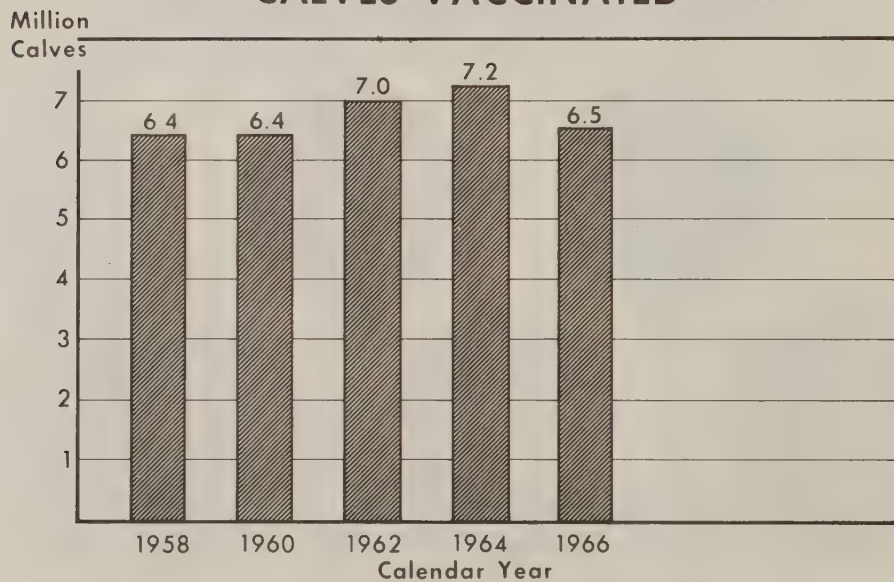
December 31

## CERTIFIED COUNTIES

### COOPERATIVE STATE-FEDERAL BRUCELLOSIS ERADICATION PROGRAM



## CALVES VACCINATED

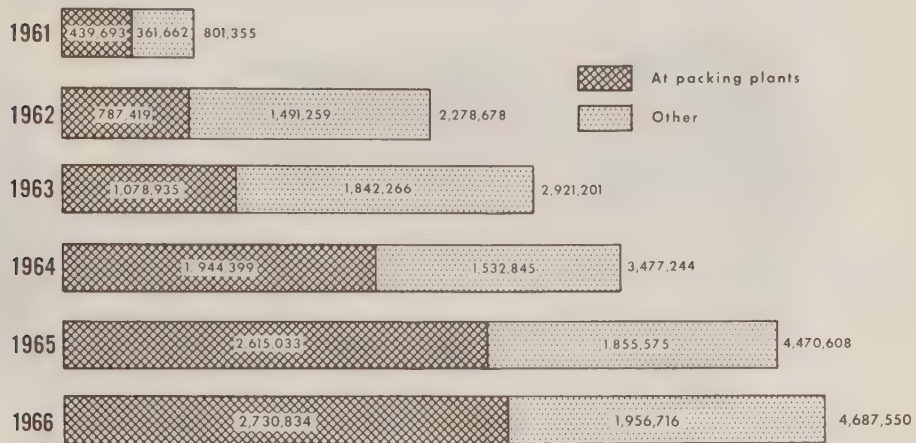




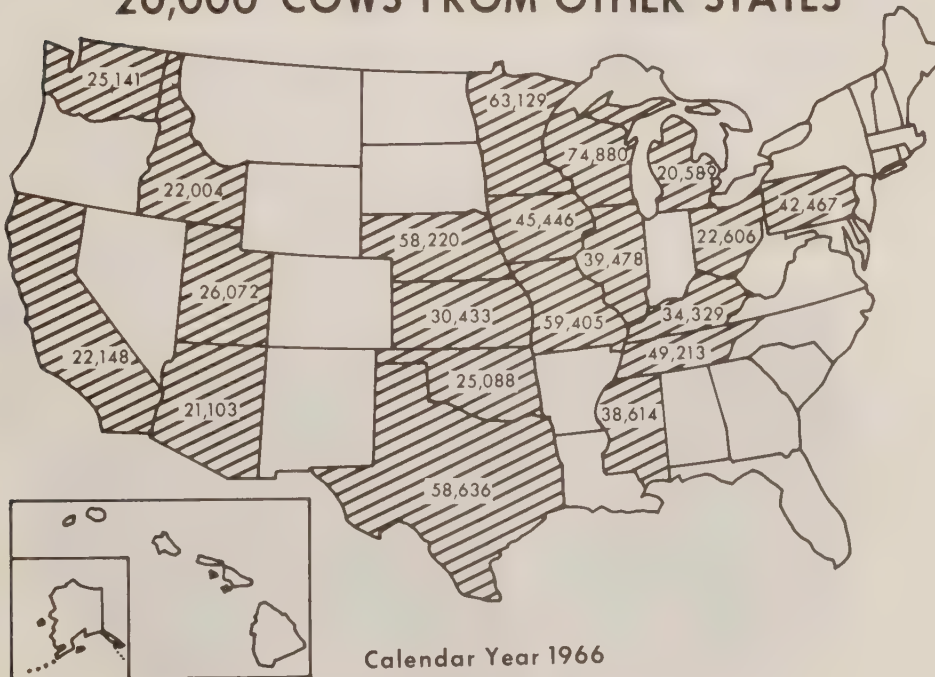
## MARKET CATTLE TESTING PROGRAM

*Cows Blood Tested*

Calendar Year

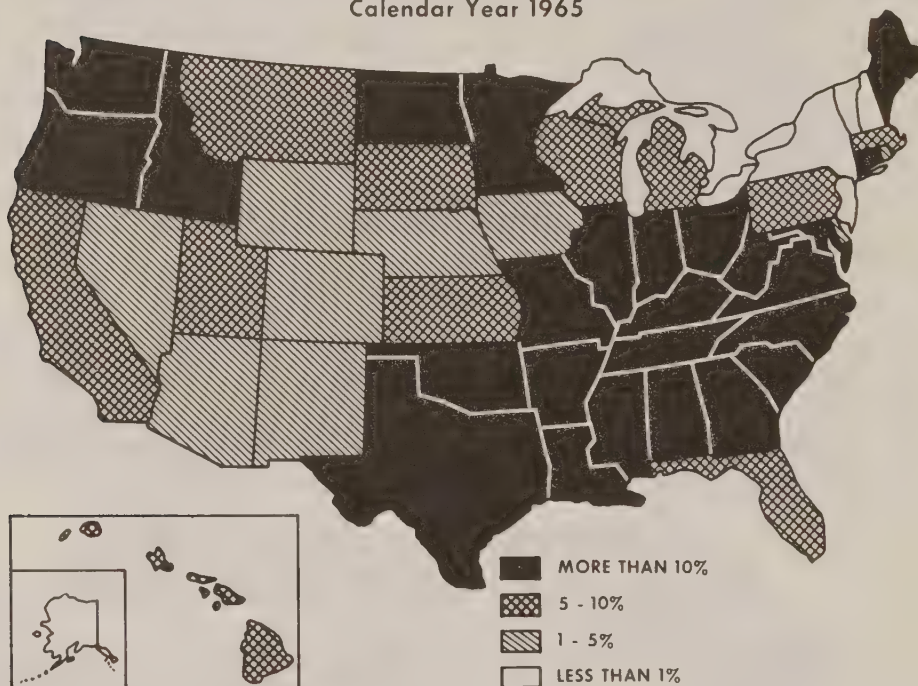


## STATES TESTING MORE THAN 20,000 COWS FROM OTHER STATES



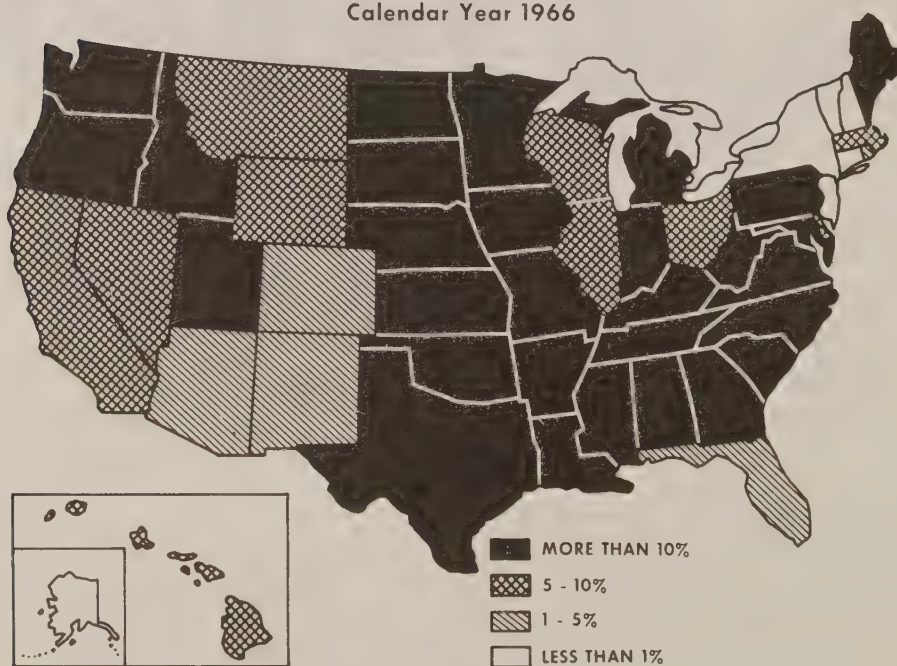
# PERCENT OF ADULT COW POPULATION MARKET CATTLE TESTED FOR BRUCELLOSIS

Calendar Year 1965



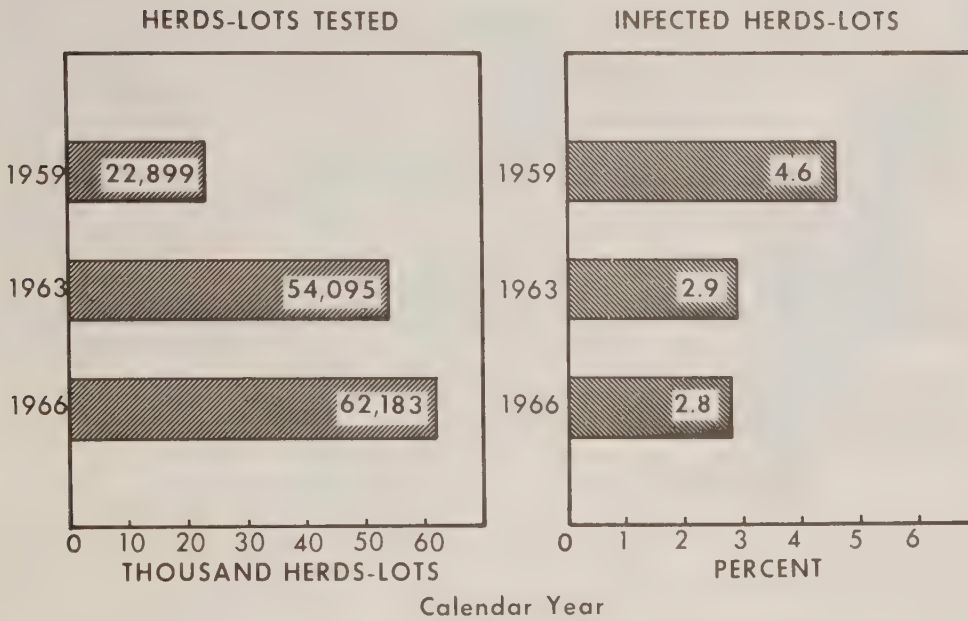
# PERCENT OF ADULT COW POPULATION MARKET CATTLE TESTED FOR BRUCELLOSIS

Calendar Year 1966

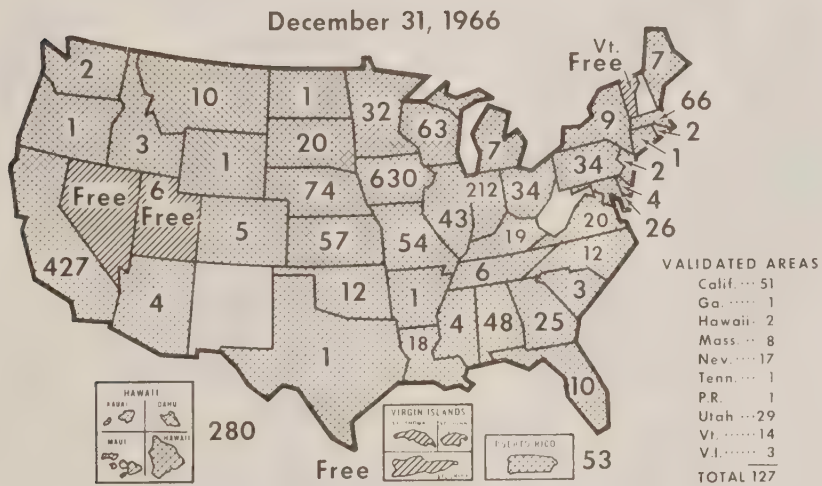




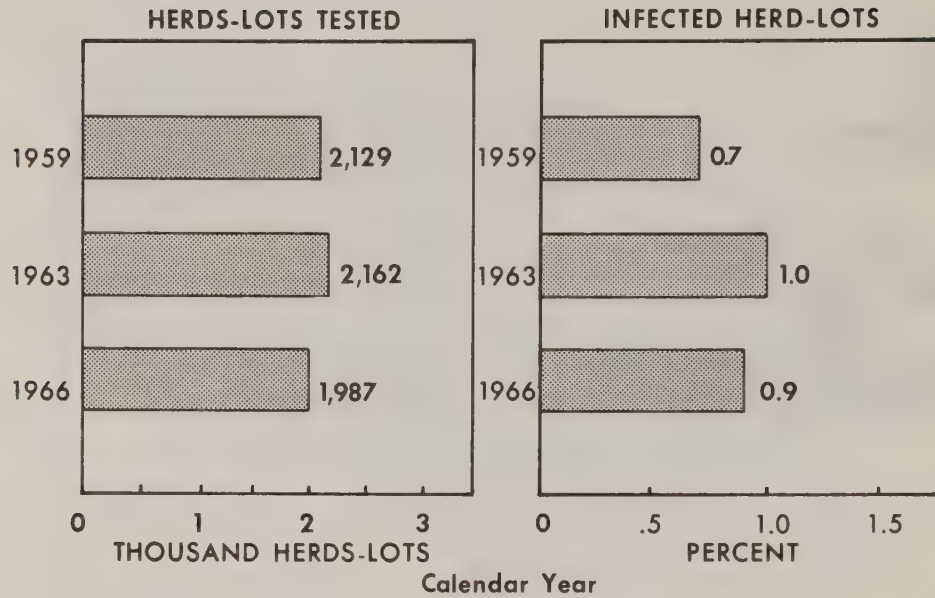
## BLOOD TESTING: SWINE



## STATES WITH VALIDATED BRUCELLOSIS - FREE SWINE HERDS

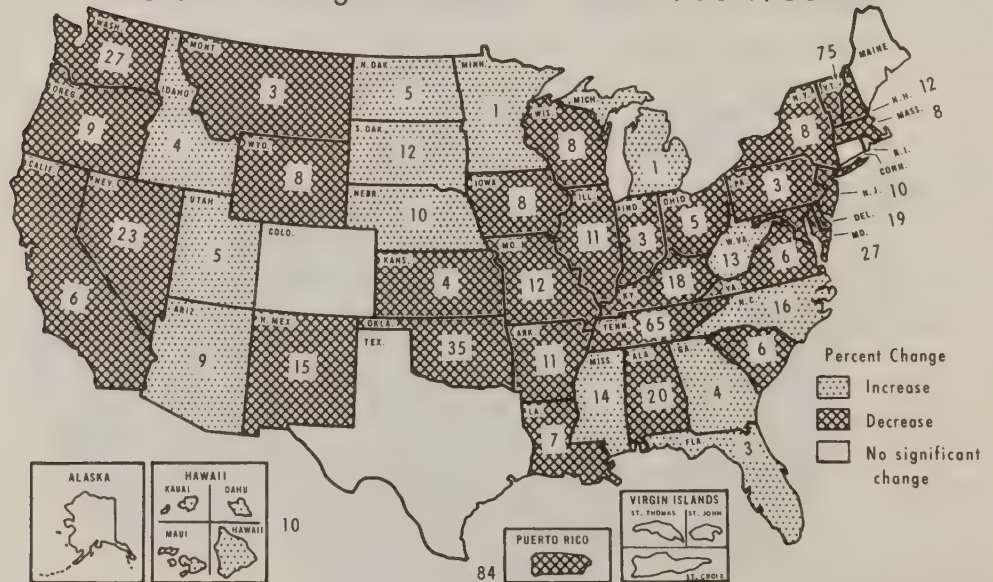


# BLOOD TESTING: GOATS



# CALF VACCINATIONS

Percent Change - Calendar Year 1965-1966

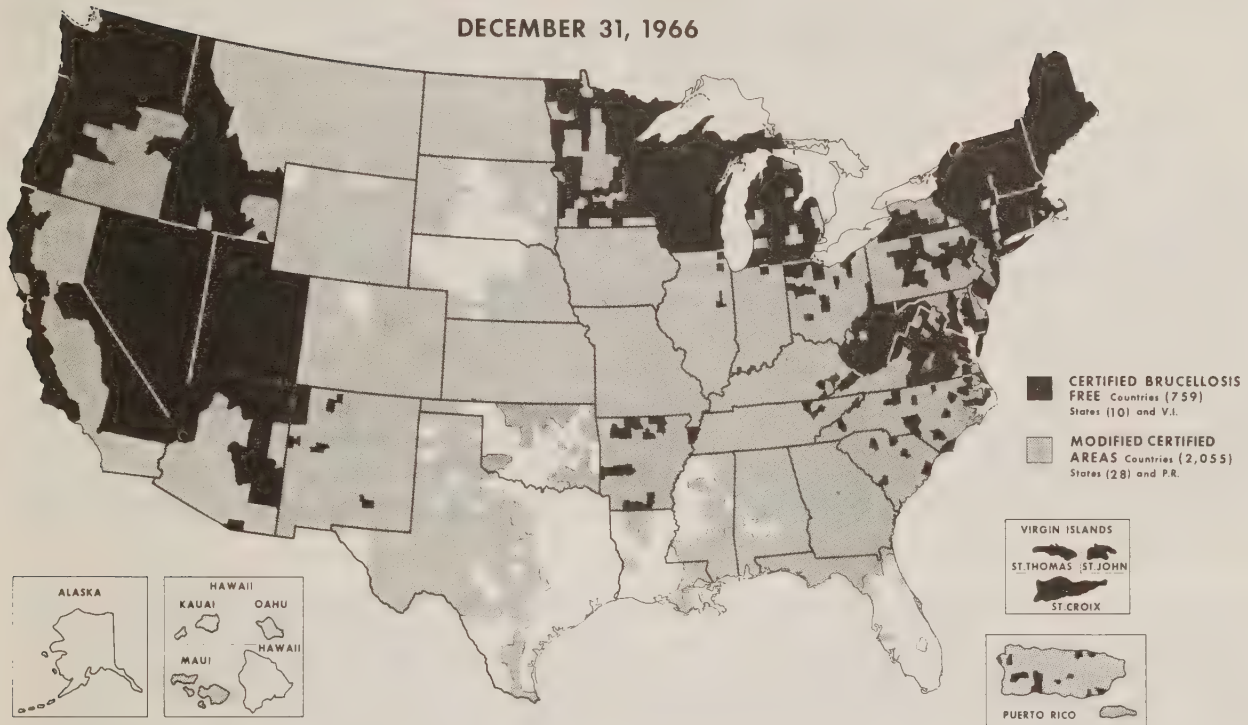




## Brucellosis Eradication Program

### CERTIFIED AREAS

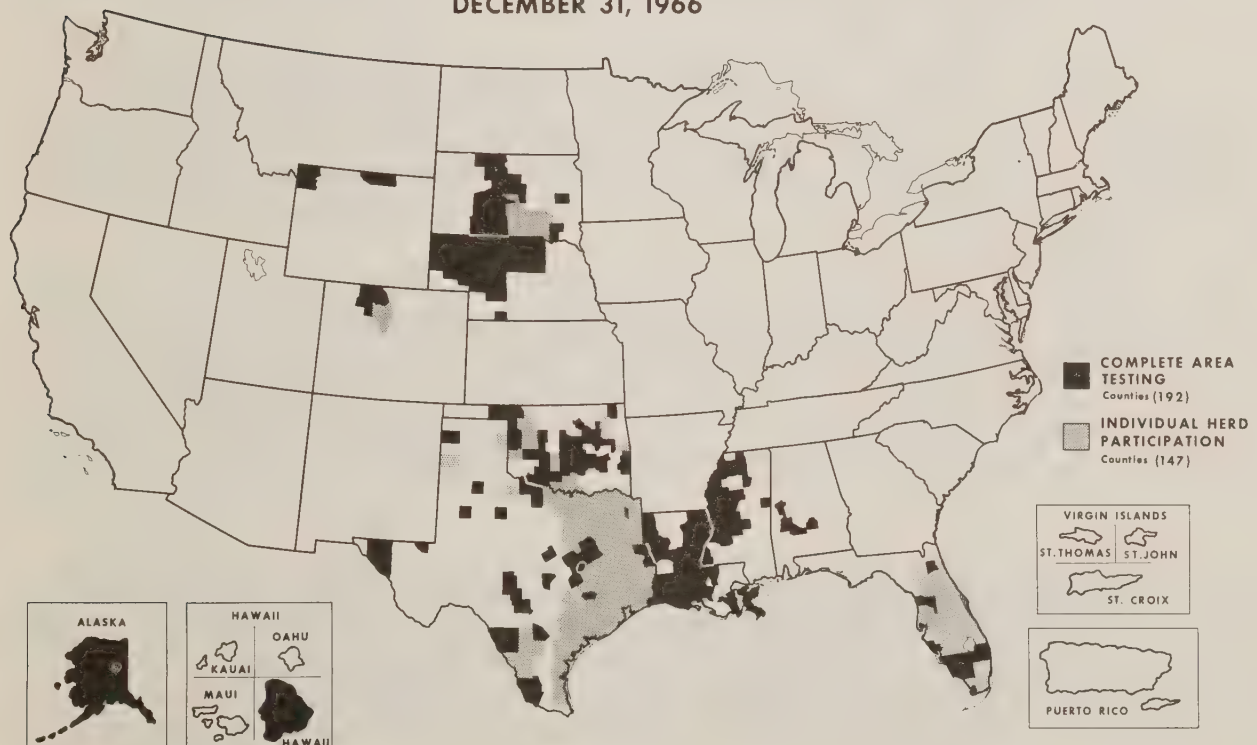
DECEMBER 31, 1966



## Brucellosis Eradication Program

### NONCERTIFIED AREAS

DECEMBER 31, 1966



+ WE REQUIRE THAT MARKET CATTLE  
BE IDENTIFIED--A FOUR STATE REPORT X

ALABAMA (J. G. Milligan, State Veterinarian): The subject of this discussion as it applies to Alabama could be somewhat misleading in that our market cattle identification and market cattle testing program for brucellosis are commingled. Our regulations require that the animals be bled for the brucellosis test or be identified at the first market in which they are offered for sale after leaving the farm.

We realized in the early phases of our brucellosis eradication program that it would not be economically feasible or physically possible to continue testing 20 percent of the cattle in all areas of the State every 3 years in order to maintain certification. For this reason, we began to take advantage of all means at our disposal to cut down on the cost of the program and to do away with as much leg work as possible.

The milk ring test had served us well in screening dairy herds, and we knew of no better method of screening the beef herds than through the market cattle testing program. It was then that the Board of Agriculture passed a regulation requiring all animals be bled for brucellosis test or identified for market cattle test in the first salesbarn that they entered.

The marketing habits in Alabama are uniform. There are 73 salesbarns within the State that hold auctions at least once a week and some of them as many as two or four times a week. Since the State maintains an inspection service at all of these markets each salesday, it is a simple matter to identify animals that enter the salesbarns. Each salesbarn is required to have veterinary services available at all times on each salesday so that it is possible to have blood samples drawn by veterinarians at each sale.

Many of the 73 salesbarns do not have too large a volume of sales. This makes it possible to bleed each animal as it enters the barn, which is done by the practicing veterinarian who is available. He is paid 50¢ per sample by the State for his services. After these animals are bled, they pass through the salesring and are sold for slaughter or sold to return to the farm. If the animals are to be returned to a farm, the veterinarian pulls this sample from the block of samples and runs the blood test on the animal.

If the animal returns to a farm in Alabama, the State pays 75¢ additional fee for the test. If the animal is to be shipped out of the State, the purchaser of the animal pays for the service. The veterinarian returns these samples to his block of samples along with his test results, and all samples that he has taken at the salesbarn are sent to the State-Federal laboratory for testing and confirmation. These results are then sent to the USDA's Animal Health Division and State offices.

In those salesbarns where the volume is so large that bleeding is impossible, the animals are backtagged as they enter the salesbarn. Backtags are recorded on form ANH 4-54, and these forms are forwarded to the ANH office. The animals pass through the salesring and the animals that are sold for slaughter are released from the salesbarns to the slaughterhouse by State inspectors. Those animals that return to farms are bled by the practicing veterinarian who tests the animals and then forwards blood samples and test results to the State-Federal laboratory for confirmation.



Those animals that have gone to slaughter in either State-inspected plants or Federally inspected plants are bled at the time of slaughter by an authorized person within the plant. This person records the backtag numbers, brands, earmarks, and other tag numbers on form ANH 4-33A and forwards blood samples to the State-Federal laboratory for testing. These results are forwarded to the ANH and State offices.

This information, gathered from the test of both the animals bled at the salesbarns and the animals bled at the packing plants, is processed. When reactors are found, the charts are immediately forwarded to the regulatory veterinarian in charge of the area whether he be State or Federal, and he contacts the owner of the farm or origin. Regulations state that a reactor animal discovered on a market cattle test should be considered sufficient evidence to declare the farm an infected premise and require that all animals on the farm be tested.

These methods have served us well in locating infected farms so far as brucellosis is concerned. Unhealthy animals are usually sold at the first opportunity by the farmer. Female animals that have not raised calves are sold in order to make room for producing brood cows. We, therefore, have an opportunity to discover the disease without waiting until animals might be tested on a routine 20 percent test. This makes our job of locating infection much easier and much more rapid.

The backtagged animals have been a great aid in recrediting counties for TB. We now know that we have to greatly expand our identification of market animals if we are to do a thorough job of tracing back all diseases. We are in the process of coding all salesbarns in the State and, in the very near future, we hope to at least temporarily identify every animal that is sold through a salesbarn. We feel that this will aid us in carrying on a much less costly and more efficient disease control program throughout the State.

MAINE (Francis G. Buzzell, Director, Division of Animal Industry): Our market cattle testing program was officially started on January 15, 1962, and was designed to meet our conditions with as little red tape as possible and yet be capable of doing the job.

We backtag all slaughter females over 2 years of age and all bulls over 1 year of age regardless of whether or not they are on the brucellosis ring test.

We have only about 180,000 head of cattle. About one-half of these are in commercial dairy herds, which represent 25 to 30 percent of the total number of herds. More than 90 percent of our slaughter cattle are killed in the State.

The State pays all expenses connected with the program except for laboratory personnel and backtags. We are using the tags which were first put out. In Maine, we have 2 Federally inspected slaughterhouses, 51 State licensed slaughterhouses, 3 small commission sales, and 176 licensed livestock dealers.

We pay all slaughterhouses in the State 25¢ per blood sample plus postage on the samples. We also collect swine blood samples under the same program. Most of our cattle and swine are sold on a dressed weight basis.

We issue backtags and report books to commission sales, dealers, and slaughterhouses only, and they are responsible to us for the proper tagging and reporting of all slaughter cattle. Reports are required weekly, returnable to the State office in prepaid postage envelopes. These reports show the backtag number of each animal and name and address of farm of origin. They are used in the laboratory and the Federal and State offices to identify the animal throughout the entire program.

The tags that are issued are recorded and are not supposed to be transferred between people after issuance. The reports are due weekly in the State office and are checked for notes, such as requests for more tags and report blanks, and then are sent immediately to the laboratory. The blood is received in the laboratory from the slaughterhouses with each backtag wrapped around the blood tube.

## Applying Tags and Completing Reports

I have indicated that three different groups are responsible for the tagging and reporting: The commission sale, slaughterhouse, and dealer. Commission sales receive cattle from farmers and dealers. The dealers must have all cattle tagged that they bring in. Farmers use the tags issued to the Commission Sale, but it is the Sale's responsibility to see that they are tagged and reported. Dealers must tag and report all slaughter cattle handled by them. Cattle that they have held over 30 days are reported as from their own herds unless the original backtag is still on.

Farmers taking cattle directly to the slaughterhouse must tag and report at time of unloading. However, tags and reports are furnished to the slaughterhouse, and it is responsible for the identification and reporting of these animals.

As I have indicated, the slaughterhouse is responsible for collecting the blood sample, removing the tag, placing it around the blood sample tube, and sending the sample in to the laboratory at least once a week.

As the blood samples are received they are set up in the laboratory, using backtag numbers to identify the blood samples. After the samples are read they are checked off on the backtag report. Should any titer show that would classify them as suspects or reactors, they are reported to the State office and the farm of origin is checked to determine age and vaccination status. Office records are checked to determine whether or not these suspects or reactors are on the brucellosis ring test or on recent herd tests. The herd is then dealt with as seems necessary. Only suspects or reactors are reported to the State office. The tag use reports are checked in the laboratory where the blood is run. The reports are sent to the Federal office where credit is given to the herd of origin.

Problems have been few. Occasionally a dealer will fail to report, or fail to tag cattle that he should. Some cattle go for replacements from commission sales. Therefore, we lose these as they are not slaughtered. Some out-of-State slaughterhouses, even some under Federal inspection, have failed to take blood samples of all backtagged cattle. We test all backtagged animals regardless of origin and have an agreement with the Canadian Government whereby we are reimbursed for testing Canadian backtagged cattle.

Some dealers use carbon paper in the report books but we do not require that they do.

In the laboratory, if the blood is received ahead of the report, the blood is run then checked off on the report when it comes in. Cattle reported tagged on which we do not receive blood or reports of tests from other States give us an opportunity to contact the dealer to find out where these cattle were slaughtered or sold by him. In this way, we can check on our slaughterhouses or know that the animals went out of State to a slaughterhouse not under the program in that State.

The laboratory has an up-to-date list of tags issued, and dealers usually kill at the same slaughterhouse. Therefore, there has been a minimum of records necessary and very little chance for errors.



We have some duplication of effort since we backtag and blood test cattle from herds routinely screened by the milk ring test. But due to the large percentage of the herds that are not commercial milk producers, yet many containing dairy type cattle, we feel this duplication of screening for brucellosis is necessary to comply with Federal recommendations. In fact, personally, if I had to make a change, I would drop the milk ring test under our conditions.

Our only problem to 100 percent coverage of slaughter cattle is a few that are killed in other States at plants not under the program, some of which are slaughtered at Federal plants.

Maine pays the two Federally inspected houses the 25¢ per sample the same as others in the State. Our backtag reports are a size that will fit into a pocket or glove compartment of a car or truck.

We screen dairy herds with the milk ring test three times a year. Cattle not under the milk ring test or the MCT program are tested about every 3 years, which has proved sufficient to maintain free status. During the past 2 fiscal years, we condemned 11 cattle, 10 of which were over age vaccinated animals. These were in 11 herds. Undoubtedly, the one classified as not vaccinated was vaccinated.

We have had a few dealers whom we had to threaten to revoke their dealers' licenses for failing to report the use of backtags. Slaughterhouses have proved to be valuable in enforcement and generally have done an excellent job.

At the start of the program we contacted every dealer, commission auction, and slaughterhouse in the State and explained the program and their part in it, asking their cooperation. In a very few cases, where they indicated they would not cooperate, it was necessary to remind them that they were operating under a license or permit from the State Department of Agriculture and, if they wanted to remain in business, they would have to comply. At present we have few problems and any that arise come to the State office for solution.

MISSOURI (J. E. DeWeese, Assistant State Veterinarian): Missouri initiated the market cattle testing program in every livestock market and slaughtering establishment on August 30, 1965. At the present time, we are screening over four times as many herds for one-half the cost. Our time, energies, and money can be used more efficiently where we are reasonably certain infection exists.

There is no question about the full teamwork effort needed to provide maximum efficiency in any MCT program. From the time animals move off the farm to the final recovery of a blood sample may take many weeks. Every member of the marketing industry must cooperate. There must be coordinated efforts among State and Federal personnel in both the Animal Health and Meat Inspection Divisions. Extended effort is needed to complete tracebacks and effect removal of infected animals. Every interested member of the livestock industry is called upon to support an effective MCT program in any State.

With more than a year's experience in Missouri, I can say that we are receiving better than average cooperation in every field of our MCT program.

In 1966, we licensed every livestock auction and livestock buying station in our State--approximately 220. Forty-nine of our slaughtering establishments are authorized to receive and slaughter out-of-State cattle not known to be affected with brucellosis.

One hundred and six livestock markets are approved to handle interstate shipments of cattle not known to be affected with brucellosis.

Missouri has 18 slaughter establishments under Federal inspection, 49 under municipal inspection with a total of 36 that are "accredited" to comply with post-mortem requirements for tuberculosis inspections.

There is a total of 267 slaughter establishments in Missouri participating in the recovery of samples from animal identification. Forty-one percent of animals tested at slaughter are subjected to post-mortem examination.

Backtag contractors apply 99.6 percent of all backtags. Approximately 0.4 percent are applied by regulatory personnel.

The average recovery of backtag samples for the first 6 months of our program including stockyards, livestock auction markets, and slaughtering establishments was 51.1 percent. The 453,413 cattle tested for brucellosis during fiscal year 1966 had an infection rate of 0.5 percent.

There were 39 herds tested for TB as a result of tracebacks during the fiscal year 1966. Three herds disclosed reactors, and 11 animals were removed from the 3 herds.

Every livestock market and every veterinarian in Missouri is issued a "Missouri Guide For Livestock Movement." This guide is designed to aid anyone in the requirements for livestock movement. The guide contains the following:

1. Missouri marketing law.
2. Requirements for each class of livestock movement.
3. List of Missouri livestock markets and stockyards.
4. List of Missouri livestock swine buying stations.
5. List of Missouri commercial cattle feedlots.
6. List of Missouri commercial sheep feedlots.
7. Procedure for brucellosis plate test.
8. Market cattle testing animal movement outline and explanation.
9. Outline of recent changes and followup procedure on testing results at livestock markets.

We feel that this guide to movement has been of great importance in our MCT program. Local problems can be solved merely by consulting this guide. Common knowledge of basic movement requirements maintains a uniformity of procedure.

The application of backtags is done by one of the contractors. This can be a trucker, livestock market operator, veterinarian, commission company, or any slaughtering establishment personnel.

The tags are applied as the animals leave the farm or as they arrive at any one of the designated points.

If the animal is tested at a market after the backtag has been applied, the tag or the number accompanies the blood sample to the State laboratory. A bangle tag or test paper then accompanies the cow as proof of test.

At present, Missouri requires females or bulls 8 months or over to be tested before leaving our markets.

Official calfhood vaccinates can move on proof of vaccination if they are under 30 months of age. Testing is required within 30 days of sale on other cows unless consigned to another market, to a commercial feedlot, for feeding and grazing purposes, or to slaughter.



Any animal that is backtagged can move in any channel of trade without restriction. The tag is used as a permit to move unless the animal returns to a farm whereby it would have to be tested.

Recovery of backtags and blood samples come from the following sources:

1. Private test-practicing veterinarians (cattle consigned to commercial feedlots, etc.).
2. Livestock auction market veterinarians.
3. Livestock terminal market veterinarians.
4. Slaughtering establishments.

Missouri is, in every effort, trying to comply with recommendations of the National Brucellosis Committee of the Livestock Conservation, Incorporated. In keeping with this effort, our goals are:

1. Recertifying areas for brucellosis and reaccrediting areas for tuberculosis on a State basis.
2. Increasing the surveillance of livestock for the presence of disease by continuing to expand the MCT program.
3. Utilizing a full-time brucellosis epidemiologist.
4. Anticipating more free movement of livestock.
5. De-emphasizing calfhood vaccination in the near future.
6. Collecting of fresh milk samples from milk plants once each quarter for a better surveillance of dairy herds.
7. Using tube test at both laboratories.
8. Projecting the use of the card test to help eliminate the suspect status.

The objective of our MCT program can be summed up in that we are after maximum surveillance for our brucellosis and tuberculosis program for eventual eradication of both diseases while, at the same time, allowing a minimum of restrictions on the movement of livestock.

WISCONSIN (A. A. Erdmann, Chief, State-Federal Veterinarian): On December 1, 1966, Wisconsin adopted a regulation putting into effect a compulsory Market Cattle Identification Program. This regulation requires that all bovine animals over 2 years of age, which originate from herds within Wisconsin and sent to slaughtering establishments maintaining veterinary inspection, be identified by a backtag. The responsibility for applying these tags is by regulation placed with our livestock truckers, dealers, market and stockyard operators, and slaughtering establishments maintaining veterinary inspection.

The responsibility for identification rests with the first person receiving control, as the animal moves through the various assembly points on its way to slaughter. For example, a trucker picking up an animal destined for slaughter would apply the backtag at the farm of origin. If, however, he should fail to do this, which is a violation of our regulation, the slaughtering establishment, which would be the next agency gaining possession of the cow, would be required to identify her.

An exception to the requiring of livestock truckers to apply backtags is made in the case of certain specific livestock markets or assembly points providing: (1) The market agrees to accept the responsibility for backtag identification. (2) At the time of delivery, the market is furnished with the necessary information identifying the animal to the herd of origin. This exception does not apply to livestock dealers or any other agency except truckers. It provides an alternative for those markets desiring to utilize the two-color market cattle identification tag in lieu of a salesbarn tag, which eliminates the problem of cattle being double tagged as a result of our program.

We have very recently completed our initial contacts of all people who would apply tags, and we have slightly less than 1,000 backtag applicators. The Statistical Service of U.S. Department of Agriculture tells us that between 91 to 93 percent of Wisconsin cattle are slaughtered in establishments maintaining Federal inspection. On January 1, 1968, Wisconsin's Meat Inspection Law goes into effect and the 7 to 9 percent of adult cattle now being lost because they are not slaughtered under Federal inspection will then be covered by State personnel. Backtag information will be available from State personnel.

This fall we discontinued area testing for tuberculosis, in which one-sixth of our cattle population, or approximately 500,000 animals, were tested annually by means of an area test. In place of this, we are utilizing the results of the backtag program for tuberculosis accreditation of our counties and for both TB and brucellosis in respect to our beef cattle.

Our records over the past 6 years indicate that we must test approximately 225,000 cattle by down-the-road testing to locate one herd with bovine tuberculosis. By utilizing traceback information, we have to test just one herd to get the same results. We have actually located more bovine tuberculosis infection during the past 6 years through traceback procedures of lesioned cattle disclosed at slaughtering establishments, utilizing rather incomplete identification methods, than we have found through area testing.

Likewise, in Wisconsin, where the vast majority of our cows are dairy animals, we have found the milk ring test for brucellosis to be an extremely effective procedure for screening dairy herds for the presence of this disease. In fact, before the adoption of our compulsory backtag program, the blood testing of several hundred thousand backtagged cows did not locate any dairy herds affected with brucellosis that had not already been disclosed by the milk ring test. For this reason, we do not have a blood sample drawn on dairy animals for a brucellosis check but ask that the tag be used to maintain the animal's identity during slaughter until the meat inspector has completed his examination for TB lesions.

In case of beef animals, the backtag serves both the brucellosis and TB eradication effort. It identifies the blood sample for the brucellosis test and the carcass for examination for TB lesions.

We are just now beginning to move into the enforcement phase of this program, and enforcement appears to be relatively easy to achieve. Our enforcement is based on checking the receipts of cattle at the 19 slaughterhouses in Wisconsin which are under Federal inspection. If the animal originates from Wisconsin and if it is more than 2 years of age and is not backtagged, someone has ignored the backtagging requirement. It then becomes a simple matter to ascertain the trucker or dealer or other agency that consigned these animals to the slaughtering plant for enforcement purposes.

If a slaughtering establishment, for example, would be backtagging a considerable number of cattle under the name of a livestock trucker, it would appear that the trucker was not meeting the backtag requirements and corrective action could be taken. Since the program went into effect on December 1, the number of backtagged animals received at our slaughtering establishments has continuously increased, the percentage of increase being 40 percent in January over December, and it would appear to be about 40 percent in February over January.

Meat Inspection Service of USDA is doing a better job than they were several months ago. There are still, however, many problems that exist in this area. Our plants range from almost 100 percent recovery of backtag animals to a large plant slaughtering approximately 500 cattle per day whereas, as yet, no backtags are recovered. Meat Inspection Service, however, has been attempting to correct deficiencies that exist, and it is hoped the problem will be resolved in the next several months.



For your information, Wisconsin's "Order of the State Department of Agriculture Adopting Rules" reads as follows:

"Ag 10.21 (4) Slaughter identification. (a) All bovine animals over 2 years of age originating from herds in this State and received for sale or shipment to a slaughtering establishment shall be identified with a backtag issued by the Department. The backtag shall be affixed to such animals at a point 4 inches behind the shoulder and 4 inches below the top line.

(b) It shall be the duty of every livestock trucker, livestock dealer, livestock market operator, stockyards operator and slaughtering establishment subject to or maintaining veterinary inspection to identify all such bovine animals not bearing a backtag at the site and at the time of receiving possession or control of such animals. This requirement shall not apply to livestock truckers with respect to animals received for delivery directly to a licensed livestock market agreeing to accept responsibility for backtag identification if, at the time of delivery, the market is furnished with information identifying the herd of origin.

(c) Every person required to identify animals in accordance with this subsection shall file reports on forms prescribed by the Department, including thereon, the backtag number and date of application; the name, address and county of residence of the person who owned or controlled the herd from which such animals originated; and whether the animal was of the beef or dairy type. Whenever animals are identified, a report shall be filed with the Department at the end of each 14-day period covering all animals identified during such period.

The rules contained herein for the State of Wisconsin shall take effect on December 1, 1966.

Dated: October 24, 1966.

STATE DEPARTMENT OF AGRICULTURE

BY                     D. N. McDowell                      
Director

# HOW SWINE BRUCELLOSIS AFFECTS THE PRESENT AND POTENTIAL EXPORT MARKET FOR PORK

by  
Clarence H. Pals, D.V.M.<sup>1</sup>

Reports of the existence of hog cholera and trichinosis in the United States were seized upon as early as 1879 as pretexts for prohibiting entry of our salted and smoked meats into European markets.

The first legislation for Federal Meat Inspection was passed by Congress in August 1890. This was but a feeble attempt to satisfy requirements of foreign governments. It proved ineffective and on March 3, 1891, Congress passed a law which provided for an inspection service that was found acceptable to cover exports to Europe. In 1967, over 75 years later, we are still faced with restrictions on our exports due to the existence of certain animal diseases in the United States. The British market for pork products has been closed to us for several years due to the existence of hog cholera in the United States. Canada chooses to continue to receive pork products in spite of the fact that they have had an eradication program in effect for many years. We appreciate such sympathetic understanding.

In August 1965 the United States was notified by Germany that effective January 1, 1966, pork products including livers and kidneys should be certified as coming from farms not quarantined for hog cholera or swine brucellosis and where the disease had not existed for 60 days. Germany presently has an eradication program for both of these diseases. During the last 2 weeks of October 1966 they had 5 premises quarantined for swine brucellosis and 70 for hog cholera. This was published in their Tierseuchen-Bericht for October 16-31, 1966.

The effective date of the required certifications was extended to October 31, 1966. Since that time certificates have not been issued by the Meat Inspection Service for pork livers and pork kidneys to Germany. We must find a way to reopen this market.

Good progress is being made in the hog cholera eradication program. Where animals can be identified to the farm of origin, it is possible to establish their eligibility for export to Germany.

We had gained some time by asking for extensions which would permit us to develop means of compliance. Thus, we were faced with an immediate loss of a 10 million dollar a year market for pork livers and pork kidneys. During the year the price of pork livers had dropped about 10¢ a pound. With an increasing volume of hogs being slaughtered and the loss of our best export market, the pork industry was in trouble.

I would like to digress for a moment and comment on how exports to Germany had been handled prior to October 31. A meatpacker could decide to prepare livers for export to Germany. He would so notify the Veterinarian in Charge of meat inspection in his plant. Since the hepatic lymph nodes were required to be incised and left attached to the livers this meant that the selection was made not in the offal cooler but on the killing floor. The packer reimbursed the U.S. Department of Agriculture for the cost of the special service.

<sup>1</sup>Director, Meat and Livestock Market Development and Research, Bauer International Corp.



Effective November 1, it was necessary for the veterinarian to have additional information. He would need to know that the hogs came from farms where foot-and-mouth disease, teschen disease, hog cholera, and swine brucellosis did not exist. The first two were easy because we have never had teschen disease in the United States and our last case of foot-and-mouth disease was in 1929.

It would still mean that the packers who would participate in the export program would need an animal identification program sufficient to know the farming origin for those products to be offered for export to Germany.

When I was in Bonn, Germany, in late November 1966, I was told that Germany is trying to eradicate both diseases. They regard the restrictions as necessary to protect their investment in the eradication programs. They assumed that because our mortality and morbidity reports mention both diseases that the reporting must be mandatory. If this were so our immediate problem could be readily solved.

During November and December 1966 the Animal Health Division of Agricultural Research Service, assisted by the Livestock Slaughter Inspection Division of Consumer and Marketing Service conducted a statistically sound survey, over a 6-week slaughter period, of the incidence of swine brucellosis in young market hogs and in older breeding hogs. The market hogs showed only about 1 in 300 reactors to the card test and the older hogs showed only a slightly higher incidence (0.343 percent in market grade hogs and 0.42 percent in sows, boars and stags). Department of Agriculture officials hoped that with this information the German Government might waive the requirement for certification on brucellosis. This was not accepted.

The progress made in hog cholera eradication permits the identification of hogs from some States and many counties as being eligible for export to Germany. State veterinarians will be able to readily identify the few farms that have had hog cholera outbreaks. Buyers would slaughter such animals at a time when product for Germany was not being selected. Thus, there should be no price discrimination. I must emphasize that an acceptable form of animal identification must be maintained in order for the Meat Inspection veterinarian to issue an honest certificate. There must be no compromise on this point.

What can we do about swine brucellosis? Can the pork industry afford the luxury of "living with the disease?" I doubt it. Possibly the losses from swine brucellosis are not spectacular. Few lesions are ever observed in the meatpacking plants. There are, however, losses in infected herds and there is the ever-present possibility of those who handle pork products becoming infected and suffering from brucellosis. I believe it is time for the industry to get behind a program of eradication.

An immediate step can and should be taken if you want to recover your important export market. I believe most States have the legal authority to require the reporting of known cases of swine brucellosis. If this is done, hogs from infected farms should be moved to market only under permit. All other hogs could then be eligible to supply products for the German market. I would predict an almost immediate rise in the price of eligible pork livers and pork kidneys. Germany wants our products badly and we want to supply them.

The first State to provide the necessary certification will reap the benefits of a better price for a surplus commodity. I strongly recommend that individually and as an Association you encourage your State officials to provide this important service.

When this problem is solved look ahead to the next one. You can rest assured that more nontariff barriers will show up as time goes on. Just look over the list of diseases reported and you will find ample justification for moving ahead aggressively in eradicating such diseases as tuberculosis, trichinosis, and abscesses--just to mention three.

We have discussed the loss of only one outlet for 10 million dollars worth of surplus product. We have already lost 4 months, or one-third of a year. I am confident we could sell many millions of dollars of pork products additional in the export market if we had a better disease control picture. I am also confident that American consumers will eat more pork when they know that additional diseases have been conquered.

Immediate action is justified to identify the relatively few forms where swine brucellosis is known to exist. Then let's get on with the job of eradication for the triple benefit of a more profitable industry, an open market, and better health for those who handle meat. Animal health control officials have an excellent opportunity to take an important step to improve the market for pork products. I hope the way can be found promptly.



# ILLINOIS SELECTS SWINE BRUCELLOSIS AS DISEASE OF THE YEAR PROJECT A Progress Report

by  
Arthur L. Starkey<sup>1</sup>

During 1966-67, Illinois selected swine brucellosis as their "Disease of the Year" project--a program sponsored by the Illinois Division of Livestock Industry, the State Department of Public Health, and the Animal Health Division of the USDA's Agricultural Research Service.

Swine brucellosis was selected for four reasons: (1) The presence of the disease in U.S. swine herds had caused the loss of a several million dollar pork export market to West Germany. (2) The number of cases of human brucellosis of swine origin was increasing. (3) The collection of swine blood samples would provide an opportunity to evaluate our present diagnostic test. (4) Epidemiological studies at the farm level would provide needed information.

The objectives of the project were:

1. To study the geographical incidence of the disease in sows.
2. To study a means of maintaining herd identity with blood samples obtained at slaughtering establishments.
3. To compare two methods of collecting blood samples--at time of sticking and later from the heart.
4. To compare the results of the plate test with supplemental tests.
5. To conduct epidemiological studies on individual farms.

In January 1967, a study survey was initiated with the Peoria Union Stockyards, Peoria, Ill., and Bird Farm Provision Company, Pekin, Ill. The Peoria Union Stockyards has a daily run of 3,000 to 4,500 hogs--10 to 15 percent of these being sows. Bird Farm slaughters from 60 to 90 quality sows, 450 to 550 pounds, daily for whole hog sausage.

Means of identification was a major concern. With 80 to 90 percent of the sows slaughtered from Illinois going interstate, the identification needed to be of a permanent nature. For this reason, a system of tattooing was selected.

Two procedures were employed in obtaining blood samples. One procedure was to collect stick blood just prior to shackling; the other involved slicing the heart, removing a blood clot and placing it in a sterile bag. Later, the serum that formed was poured into numbered vials.

During our 18-day survey, 1,223 samples were collected by the stick procedure and 391 from the heart chamber. The number of herds sampled total 147. The percentage of infection appears to be very low. Only one animal was positive to the brucellosis card test. Time has not allowed any epidemiological studies to be made on farms. Likewise, our data is too limited at this early date to draw specific conclusions about our stated objectives.

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<sup>1</sup> Field Veterinarian, Illinois Division of Livestock and Poultry Industry.

# A PROGRESS REPORT ON SWINE BRUCELLOSIS

by  
Dr. E. A. Schilf<sup>1</sup>

## USDA Initiates Nationwide Swine Brucellosis Survey

During last December, the USDA's Agricultural Research Service conducted a nationwide swine brucellosis survey for two major reasons: (1) To determine the incidence of brucellosis in slaughter swine in the United States; (2) to determine what remains to be done to eradicate swine brucellosis and thus reclaim a multimillion foreign market recently lost when West Germany imposed restrictions on imports of hog livers, kidneys, and other pork products.

Since October 31, 1966, West Germany has imposed the following restrictions on the importation of U.S. pork products including livers and kidneys: They must be certified as coming from farms not quarantined for hog cholera or swine brucellosis and where the disease had not existed for 60 days. An eradication program for both of these diseases is presently under way in Germany.

These requirements have now been modified to meet our situation. At this time, a four-point program will make certification possible: (1) All States take immediate action to assure that swine brucellosis is a reportable disease. (2) All swine on infected premises be maintained in quarantine. (3) All swine moving from infected premises to slaughter be accompanied by a permit. (4) All swine slaughtered under permit would be excluded from exportation to West Germany.

The Department's Animal Health Division personnel collected blood samples at Federally inspected slaughtering plants. During the 5-week survey, samples were collected from 5 percent of the market-weight hogs and from 50 percent of the sows, boars, and stags slaughtered on a specified day at each plant.

The blood testing of 23,000 hogs revealed the following incidence of brucellosis in the two classes of market swine: Market swine weighing less than 300 pounds had an infection rate of 0.34 percent; for sows, boars, and stags, the rate was 0.42 percent.

## A Market Testing Program for the Eradication

The livestock industry now has four major reasons for initiating and supporting a market testing program to eradicate brucellosis from swine:

1. Based on the low incidence rate revealed by the recent nationwide survey, we now know that a market swine testing program, similar to the present program for eradicating the disease from cattle, is feasible and practical.
2. Swine brucellosis poses a threat to cattle and the possibility of cross infection could jeopardize the gains already made in eradicating the disease from cattle.

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<sup>1</sup> Senior Staff Veterinarian of Cattle Diseases, Animal Health Division, Agricultural Research Service, U.S. Department of Agriculture.



3. To recapture and hold an expanding foreign market, it will be necessary to eradicate swine brucellosis.

4. The presence of brucellosis in a swine herd is a human health hazard for the producer and his family, veterinarians, livestock handlers, and meat processors. The only source of human brucellosis--undulant fever--is direct or indirect contact with livestock infected with the disease.

Practical and workable procedures for a market swine testing program can be developed. Several large slaughtering establishments have been using the tattoo to successfully identify market hogs for many years. Once the animal has been through the scalding vat and dehaired, the tattoo is easily read. By opening the heart, an ample supply of blood can be collected in a small plastic container for the brucellosis test. If the blood sample is collected at time of sticking, a method of identification less permanent than the tattoo could be used such as a bangle tag, a backtag, or a paint brand.

For the first time in the history of the cooperative State-Federal brucellosis eradication effort, we have a realistic appraisal of the swine brucellosis problem. We have nearly a decade of experience in the market testing of cattle for brucellosis that could be applied to a similar program for swine. We have the technical competence to develop effective procedures for the eradication of swine brucellosis. With the wholehearted support of all facets of the livestock industry, the disease can be eliminated within the next few years.

# HUMAN BRUCELLOSIS IN THE UNITED STATES

by  
Subcommittee on Public Health of the National Brucellosis Committee--  
James H. Steele, D.V.M., M.P.H., Chairman<sup>1</sup>

## Summary

A total of 252 human cases of brucellosis were reported from 37 States during 1966, only 10 cases less than those reported in 1965. The downward trend in numbers of reported cases beginning in 1947, which leveled off at about 400 cases during years 1962-63-64 and then resumed its downward course, has leveled off again at approximately 250 cases during 1965 and 1966.

Epidemiological histories on 201 human cases of brucellosis during 1966 have been furnished by the States. Additional reports on 18 cases, with 1965 onsets that were received after the annual report for that year was published, are also included in the data compilations.

## Geographic and Temporal Distribution (Table 1 and Figures 1 to 5)

In 1966, 37 States reported cases of human brucellosis, in 1965, 33 of these States also reported cases. Eight States that reported cases in 1965 did not report any cases for 1966. Fourteen States reported more cases in 1966 than in 1965; whereas, 22 States had fewer cases and 14 States had no change in the number of cases.

States reporting increases of five or more cases in 1966 over 1965 were Kansas, Louisiana, Mississippi, Nebraska, Tennessee, Texas, and Virginia. Virginia reported the greatest increase in cases with 30 compared to 9 cases in 1965.

Iowa reported the largest decrease in cases from 78 in 1965 to 41 in 1966. States reporting a decrease of five or more cases were Arkansas, Illinois, Iowa, and South Dakota.

Nine of the 219 cases (4 percent studied) occurred in persons who within 6 months prior to onset had resided or traveled in a foreign country. Exposure may have occurred in England or Ireland (1 case), Italy (1 case), Mexico (3 cases), Peru (2 cases), Sicily (1 case), and Spain (1 case). One additional person did not leave the United States but frequently consumed goat cheese prepared in Mexico. Eight of the 10 cases reported consumption of milk or milk products produced in a foreign country. These cases indicate that a high risk of infection exists from consumption of unpasteurized dairy products in areas where brucellosis is prevalent.

<sup>1</sup> Chief of the Veterinary Public Health Section, National Communicable Disease Center, Atlanta, Ga. Other members of the Subcommittee are: Stanley L. Hendricks, Robert N. Barr, E. R. Price, Samuel P. Leinback, and Everett F. Baker, Jr.



## Age and Sex Distribution (Table 2)

As in previous years, the majority of reported cases of brucellosis occurred in males, particularly in young and middle-aged adults. Of the 219 cases studied, 182 (83 percent) were males and 157 of the 182 (86 percent) were between 20 and 60 years of age. There was no significant age grouping in the female cases.

## Occupational Distribution and Sources of Infection (tables 3 and 4)

Packinghouse workers accounted for 101 of the 219 cases (46 percent) studied in 1966. This percentage has remained fairly constant since 1960 when it was 40 percent of the total. Forty-eight of the 101 (48 percent) packinghouse workers reported swine alone as the most probable source of their infections and 25 (25 percent) other packinghouse workers reported cattle or swine as the most likely sources of infection. Cattle alone were reported responsible for 17 (17 percent) cases in packinghouse workers.

While swine continued to be the major source of infection in packinghouse workers, cattle remained the most important source of infection in farmers. Thirty of the 219 cases (14 percent) were in farmers. Fourteen of the 30 cases were reported due to cattle contact, 5 were due to cattle or swine, and 9 to swine contact alone.

Five of the 219 (2 percent) cases occurred in veterinarians. This is a slight reduction from previous years in which veterinarians have generally represented 5 percent of the total human cases of brucellosis reported.

Raw milk was the probable source of infection for 19 of the 219 reported cases (9 percent).

Nineteen of the 219 cases (9 percent) for which epidemiological data was available were recurrent brucella infections.

## Discussion--Future Programs

The reported incidence of brucellosis in humans has been reduced appreciably within the past decade from 1,300 cases in 1956 to the 1966 total of 252 cases. Reduction in animal infection through the national eradication programs in cooperation with the States is chiefly responsible for the reduction in numbers of human cases. The majority of States (38) have reached a modified certified or certified brucellosis-free status in bovines and, in addition, three States and the Virgin Islands have now been validated as swine brucellosis free (Nevada, Utah, and Vermont). Although the decrease in human infection rate has been marked, further reduction and eventual eradication should be and can be attained.

The Veterinary Public Health Section at the National Communicable Disease Center, Atlanta, Ga., is planning to intensify the surveillance of human cases of brucellosis in the United States. The Brucellosis Surveillance Report from (PHS 4.153 CDC) has been revised in an attempt to improve its usefulness in compiling data pertinent to control of the disease.

A relatively new serological test for brucellosis is being evaluated by the Veterinary Public Health Section at the National Communicable Disease Center. Sera positive by the tube or plate agglutination test from human cases of brucellosis may be sent to the Veterinary Public Health Laboratory at the National Communicable Disease Center for comparison of the standard tube agglutination test and the 7S agglutinin test. The basis for this test is that two brucella agglutinins

have been distinguished, one being a slow sedimenting, mercapto-ethanol resistant type (7S) and the other being a rapidly sedimenting mercapto-ethanol sensitive form (macroglobulin). In a recent report by J. L. Reddin, and coworkers, the presence of 7S brucella agglutinins in sera has been correlated with bacteriologically proved acute and chronic forms of brucellosis; whereas, the presence of macroglobulins may indicate either a present or past infection or a non-specific sensitivity. Since the standard tube agglutination test reacts with both agglutinins, it can be positive in the absence of current infection.

The incidence of brucellosis continues to be high throughout the world except in the Scandinavian countries, Holland, Switzerland, Canada, and the United States (see editorial on Brucellosis in the British Veterinary Journal, Vol. 122, No. 12, December 1966). It is estimated that hundreds of thousands of persons are still being affected by brucellosis annually. There is an urgent need for public health and animal health authorities throughout the world to undertake brucellosis control campaigns.



Table 1  
Reported Human Brucellosis  
By Year and State 1961 - 1966

State	1961	1962	1963	1964	1965	† 1966
Alabama	2	7	5	4	2	2
Alaska	1	2	—	—	0	0
Arizona	* 3	6	4	2	3	1
Arkansas	19	* 11	9	6	10	4
California	20	* 28	19	21	16	13
Colorado	3	—	—	—	1	0
Connecticut	* 4	2	—	—	0	2
Delaware	* —	—	—	—	0	0
District of Columbia	—	1	—	—	0	0
Florida	10	7	4	5	4	3
Georgia	* 14	14	17	16	10	9
Hawaii	1	1	2	—	1	1
Idaho	* —	1	1	2	4	0
Illinois	59	57	26	* 26	18	13
Indiana	* 5	5	5	1	3	0
Iowa	219	105	155	114	78	* 41
Kansas	58	22	* 8	6	4	10
Kentucky	2	1	* 4	6	1	1
Louisiana	13	10	10	5	5	11
Maine	* —	—	** 1	—	1	0
Maryland	* 1	2	—	—	0	2
Massachusetts	* 2	1	—	2	4	4
Michigan	* 9	6	6	6	1	1
Minnesota	* 19	14	11	10	8	12
Mississippi	11	2	2	3	1	8
Missouri	1	4	* 14	10	12	9
Montana	3	1	1	* —	0	0
Nebraska	32	15	6	13	5	11
Nevada	* —	—	—	—	0	*** 0
New Hampshire	** —	1	—	—	0	0
New Jersey	* 2	1	1	—	1	1
New Mexico	* 2	—	1	1	0	1
New York	* 11	5	9	5	3	5
North Carolina	* 8	—	6	3	5	2
North Dakota	2	2	1	2	* 2	2
Ohio	4	1	—	* 5	3	2
Oklahoma	11	7	5	8	9	12
Oregon	* 2	2	3	2	1	1
Pennsylvania	* 4	2	3	4	2	1
Rhode Island	* —	—	—	*** —	1	0
South Carolina	—	* —	—	—	0	0
South Dakota	18	15	12	22	11	3
Tennessee	* 13	10	10	7	3	8
Texas	14	10	16	35	7	19
Utah	* 7	5	5	** 26	0	*** 1
Vermont	* 1	1	1	—	1	*** 0
Virginia	18	* 13	12	21	9	30
Washington	* 3	—	—	—	1	0
West Virginia	* —	—	—	—	2	1
Wisconsin	* 3	8	11	12	8	5
Wyoming	2	1	1	—	1	0
TOTALS	636	409	407	411	262	252

\*Modified Certified Brucellosis States.

\*\*Certified Brucellosis-free area

\*\*\*Validated Swine Brucellosis Free States

† Preliminary

Source: National Morbidity Report

Table-2  
Cases of Brucellosis by Age Group and Sex  
United States, 1966\*

Age Group	Male	Female	Total
0-4	—	3	3
5-9	2	1	3
10-14	1	2	3
15-19	3	3	6
20-24	23	4	27
25-29	33	—	33
30-34	18	5	23
35-39	20	2	22
40-44	17	1	18
45-49	24	3	27
50-54	15	3	18
55-59	7	2	9
60-64	7	3	10
65+	4	4	8
Unknown	8	1	9
TOTAL	182	37	219

Source: Case Reports submitted to the CDC, Zoonoses Surveillance Unit

\*Preliminary data, Includes 18 cases with onsets in 1965

Table 3  
Human Brucellosis Cases in Packing House Workers  
United States, 1958-1966\*

Year	Total Cases Reviewed	Cases in Packing House Workers	Percent of Total
1958	369	104	28
1959	658	155	24
1960	555	221	40
1961	413	174	42
1962	276	115	42
1963	257	122	47
1964	322	139	43
1965	207	89	43
1966	219	101	46

Source: CDC Zoonoses Surveillance Unit

\*Preliminary data, Includes 18 cases with onsets in 1965

Table 4  
Human Brucellosis Cases—1966\*  
Occupation and Probable Source of Infection

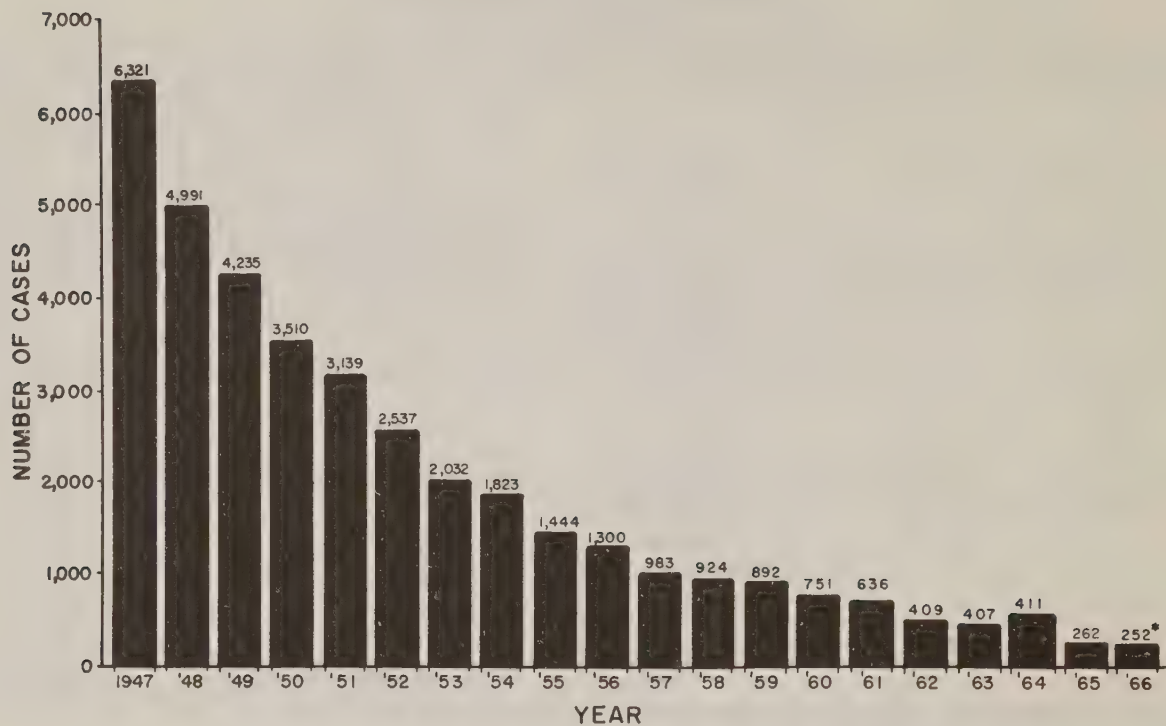
Classification	Occupation	Probable Source of Infection								
		Swine	Cattle	Cattle and Swine	Sheep or Goats	Raw Milk	Accidents	Other and Unknown	Total	Recrudescence
Animal Industry Employees	Packing House	48	17	25	1	—	0	10	101	4
	Rendering Plant	—	1	2	—	—	—	1	4	—
	Stockyard	—	—	—	—	—	—	—	—	—
Farmers	Livestock	9	4	5	1	—	—	—	19	—
	Dairy	—	10	—	—	—	1	—	11	—
	Unspecified	—	—	—	—	—	—	—	—	—
Other Categories	Housewives	3	1	—	—	8	—	6	18	3
	Children	1	1	—	—	3	—	6	11	1
	Veterinarians	—	—	2	—	—	2	1	5	—
	Other	3	6	10	2	4	2	11	38	9
	Unknown	—	—	—	1	4	—	7	12	2
Total		64	40	44	5	19	5	42	219	19

Source: CDC Zoonoses Surveillance Unit.

\*Preliminary data — Includes 18 cases with onsets in 1965.



# REPORTED HUMAN BRUCELLOSIS UNITED STATES, 1947-1966

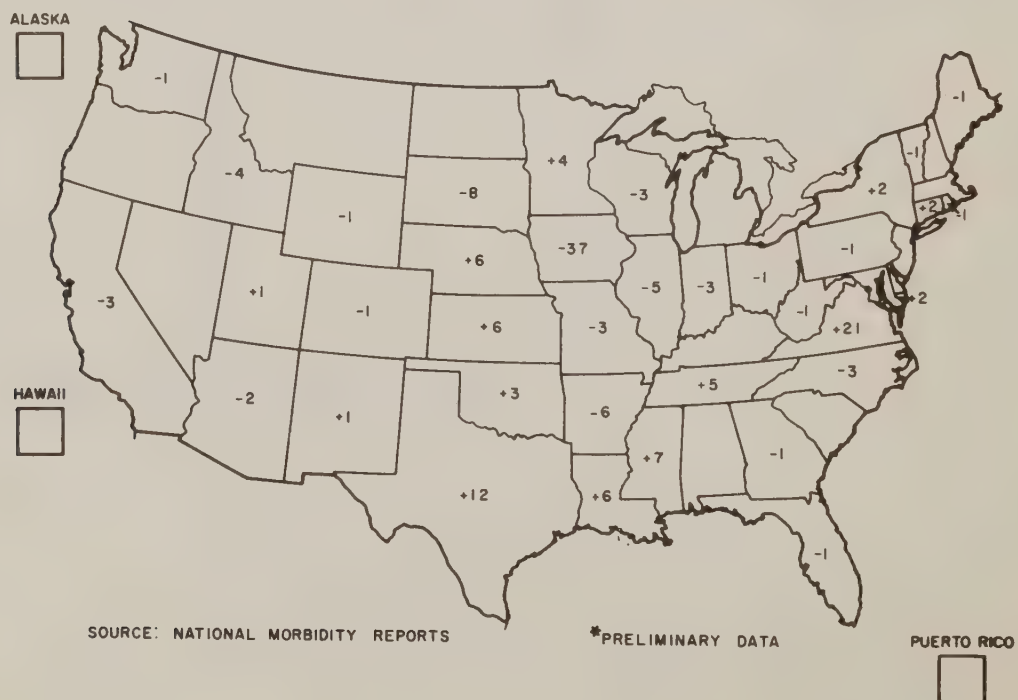


Source: National Morbidity Reports

\*Preliminary Data

Figure 1

## REPORTED CASES OF HUMAN BRUCELLOSIS INCREASES AND DECREASES IN NUMBER OF CASES IN 1966\* COMPARED WITH 1965



SOURCE: NATIONAL MORBIDITY REPORTS

\*PRELIMINARY DATA

PUERTO RICO

Figure 2

# REPORTED BRUCELLOSIS CASES

UNITED STATES, 1965

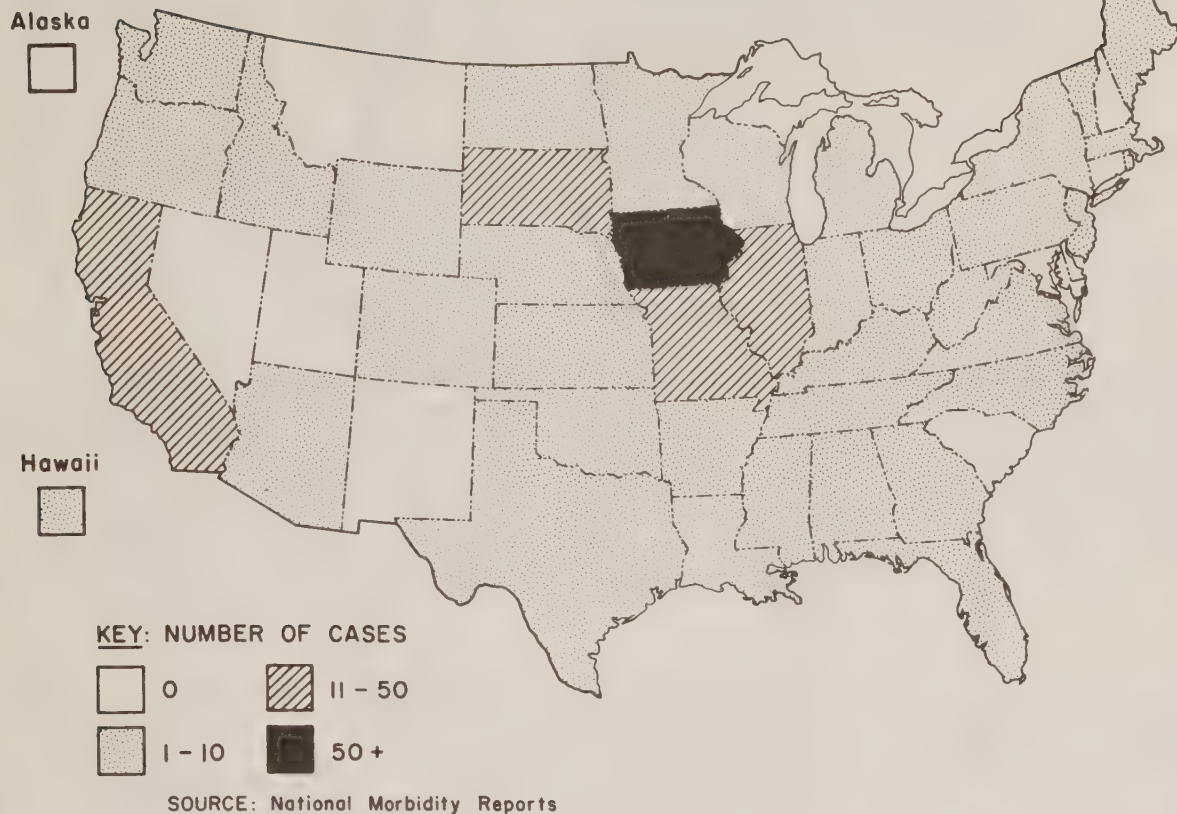


Figure 3

# REPORTED BRUCELLOSIS CASES

UNITED STATES, 1966\*

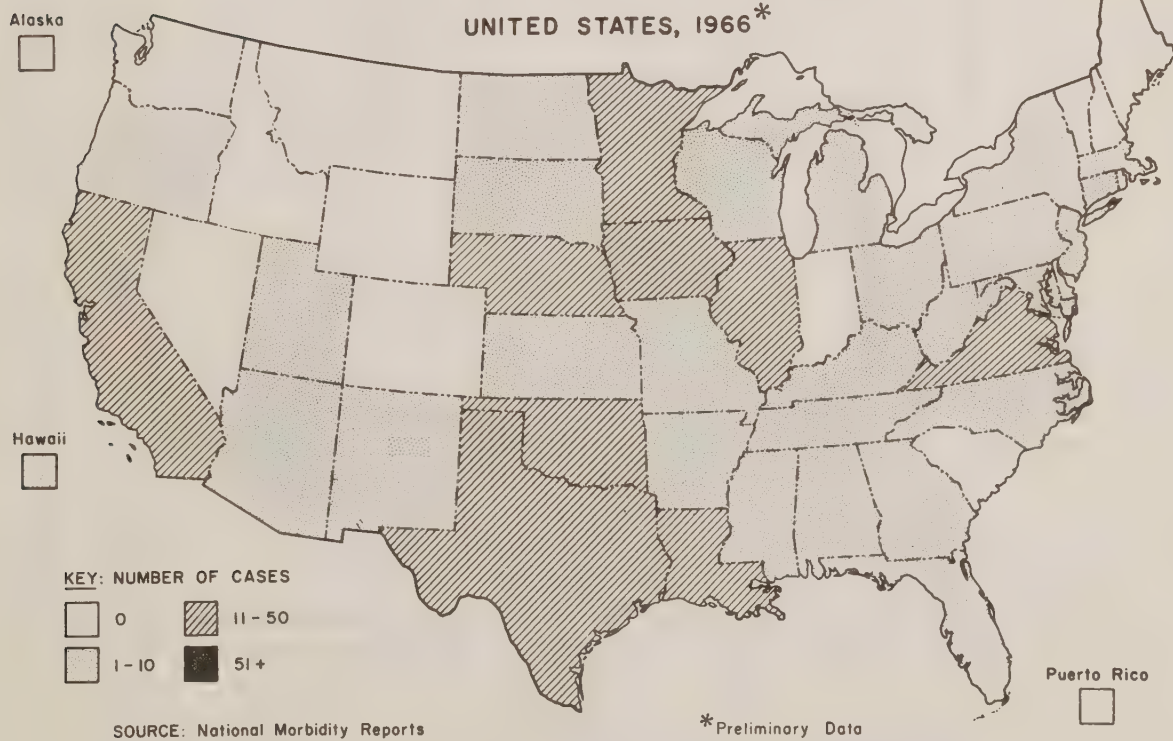
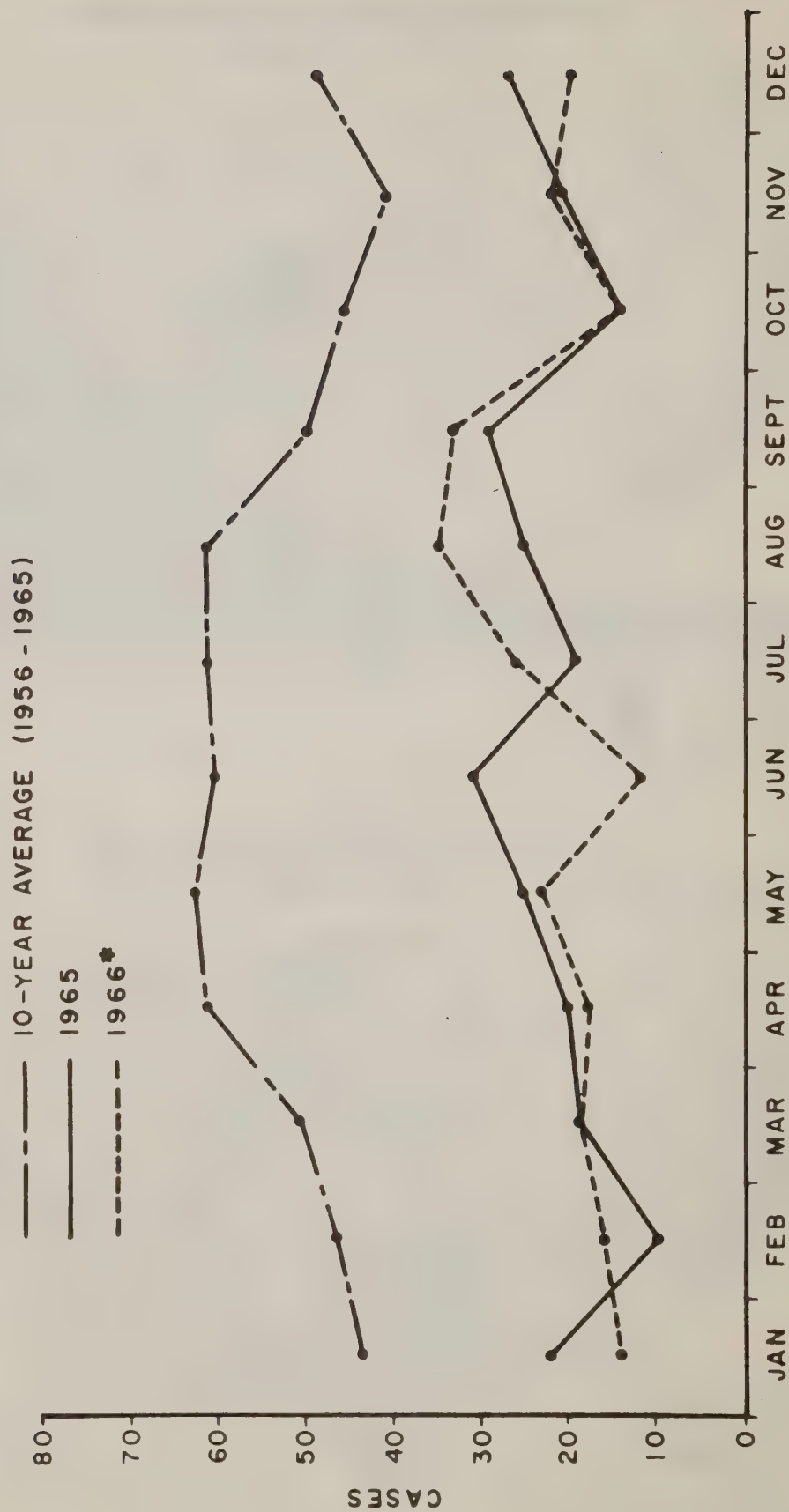


Figure 4

# SEASONAL TRENDS OF REPORTED HUMAN BRUCELLOSIS



SOURCE: National Morbidity Reports

\*Preliminary Data

Figure 5



# REPORT OF THE SUBCOMMITTEE ON RESEARCH

by  
C. A. Manthei, Chairman<sup>1</sup>

## Characterization and Classification of Brucellae

A considerable amount of research is being done to improve methods of characterizing isolations of Brucella and to establish a classification scheme that has a practical as well as an academic application. A practical classification scheme has many applications in the control of brucellosis. In countries where the incidence of brucellosis is relatively high, the classification scheme can be used to improve diagnostic tools to develop serviceable vaccines and to establish workable control programs. In countries that are free, or relatively free, of brucellosis, the classification scheme can be used to identify the cause of new outbreaks and to prevent the spread of unusual or new biotypes of Brucella.

During the past several years Brucella organisms have been isolated from humans and reindeer in Alaska, Canada, and Russia. Examination of these organisms has revealed that, irrespective of area or country of origin, these strains are indistinguishable from each other. To maintain consistency in the nomenclature of the genus Brucella, it has been recommended that these organisms be classified as Brucella suis biotype 4. Work is in progress to determine the pathogenicity of this biotype for other animals and its potential hazard to the livestock industry.

The Subcommittee on Taxonomy of Brucella of the International Committee on Bacterial Nomenclature met in Moscow, U.S.S.R., in 1966 and reviewed the scheme for classification of Brucella formulated at the previous meeting of the Subcommittee in Montreal, Canada, in 1962. There was general agreement that this scheme, which provides for three biotypes of Br. melitensis, nine of Br. abortus, and three of Br. suis, was highly satisfactory and that most strains of these species of Brucella isolated throughout the world fall within the range of biotypes described.

Br. neotomae (Stoenner and Lackman), isolated from the wood rat, was officially recognized as a separate species within the genus Brucella. The question of whether "Br. ovis," the causative agent of ram epididymitis, should be included in the genus Brucella was left undecided. The available data on "Br. rangiferi," isolated from reindeer in Russia and caribou in Alaska, were discussed. As this organism differs only slightly from Br. suis, biotype 3, species rank appeared inappropriate. Accordingly, the decision of the Subcommittee was that this organism should be recognized as a biotype of Br. suis, and gave it the designation of Br. suis, biotype 4.

Attention is called to the recent, widespread occurrence of infectious abortion in beagles due to an unnamed bacterium which in some respects resembles Brucella, and which has been referred to as a Brucella-like organism. This organism does not exhibit an antigenic relationship with smooth Brucella, so it offers no interference in the serological diagnosis of brucellosis in domestic animals. However, in a number of characteristics, including the type of disease produced, it resembles Brucella. The pathogenicity of this organism for other domestic animals is

<sup>1</sup>Director of the U.S. Department of Agriculture's National Animal Disease Laboratory at Ames, Iowa. Other members of the Subcommittee are: Robert K. Anderson, I.H. Borts, Norman B. McCullough, and S. H. McNutt.

not known. Because of its similarity to Brucella, research should be immediately undertaken to determine whether it is pathogenic for cattle and swine. In the interim, appropriate echelons in the Brucellosis Eradication Program should be alerted to this potential.

## Vaccination of Cattle

During the past several years, considerable research has been done on vaccinating heifer calves at 4 months of age or younger with Strain 19. The purpose of this research was to determine if such a practice would eliminate the diagnostic problem of persistent vaccinal titers and the occasional persistent infection with Strain 19, yet produce a serviceable immunity in cattle against virulent Br. abortus infection.

The first report of this research clearly demonstrated that the immunity of cattle vaccinated at 4 months of age with Strain 19 was equal to that of cattle vaccinated at 6 or 8 months of age. Significance of these results cannot be overemphasized since earlier work showed that the immunity of cattle vaccinated at 7 to 8 months of age was equal to that of cattle vaccinated at ages older than 8 months.

The second report presented limited evidence which indicated that the immunity of cattle vaccinated at 3 months of age with Strain 19 was equivalent to that of cattle vaccinated at 6 or 9 months of age.

Two subsequent reports confirmed that the immunity of cattle vaccinated at 3 months of age was similar to that of cattle vaccinated at older ages. One of these reports also revealed that a serviceable immunity developed in cattle vaccinated at 2 months of age with Strain 19.

The relatively recent information that has been developed about vaccination of cattle with Strain 19 provides the cattle industry and the veterinary profession with additional tools to more effectively control and eradicate bovine brucellosis. This can be accomplished by maintaining a serviceable immunity in cattle vaccinated at younger ages and at the same time eliminate residual vaccinal titers that interfere with accurate interpretations of the standard sero-agglutination tests. Initiation of the proposed vaccination program, immediately, will hasten the time that we can discard the titer tolerance for cattle vaccinated at older ages, test pregnant cattle under 30 months of age, and improve our diagnostic capabilities. In our opinion this, at least, is a positive approach toward control and eradication of bovine brucellosis.

## Brucellosis Card Test

The Committee on Brucellosis of the United States Livestock Sanitary Association recommended, in 1966, that the card test be given recognition as a diagnostic test for bovine brucellosis. This action was taken for two specific reasons. A majority of studies conducted during 1965 and 1966 strongly indicated that the card test was more specific than the standard plate and tube agglutination test in detecting infected cattle. The other reason was to encourage testing of cattle in a number of States that had not acquired a modified certified brucellosis status. Cattle owners were particularly enthusiastic about using the card test because the testing and identification and removal of reactors can be accomplished in a single operation--thus saving manpower, time, and money.

If adequate comparisons are made of the card and the standard agglutination tests within the next 2 years, a critical evaluation can be made of the efficacy of the card test in the field. Since the card test results are interpreted as positive or negative, claims are being made that utilization



of the card test eliminates the bothersome suspect classification of animals. This cannot be considered an advantage of the card test because the original suspect classification was an invention of man and not a fault or a disadvantage of the standard tube and plate agglutination tests. If the suspect classification is unnecessary, we should discard it on the basis of merit and not on the basis of claims for other tests.

## Swine Brucellosis

Although there has been sufficient knowledge available to eradicate swine brucellosis within a few years, the swine breeders and producers, pork processors, and veterinary profession have shown very little inclination to support a nationwide program. Apparently their reluctance to take positive action is associated with the inapparent economic impact of the disease on the total swine industry. Some concern has been expressed about the public health significance of swine brucellosis within the past few years because of the high incidence of Br. suis infection among employees at certain slaughtering establishments.

More recently, meatpackers of this country have become concerned about an embargo imposed by West German authorities against importing pork livers from potentially infected swine. Although there are public health implications associated with both situations, the stimulus to do something about swine brucellosis appears to be generated by the economic impact on the total industry.

Regardless of a reluctance to fully utilize the available knowledge about swine brucellosis, research has continued to develop information about the pathogenesis of Br. suis, biotypes 1 and 3, infection of swine.

Severe clinical signs have occurred in about 20 percent of the boars and could be correlated with the occurrence of gross lesions in accessory genital organs. Brucella agglutinins usually appeared in diagnostic levels in the blood serum of infected swine about 1 week after exposure, reached their maximal level about 2 weeks after exposure, and then gradually receded. Agglutinins were also in exudate from seminal vesicles which had gross lesions. Gross lesions attributable to Br. suis infection were mainly limited to seminal vesicles and the regional lymph nodes. Differential blood leucocyte counts were not affected by brucellosis. Infection was widespread in the body during or soon after periods of sustained brucellemia. Maximal dissemination of infection occurred approximately 2 through 4 weeks after exposure.

Tissues of 50 swine infected with Br. suis were cultured at the time of necropsy, which was 3 months after exposure. Br. suis was isolated chiefly from the lymph nodes and genital organs of boars and from the livers of 21 of the 50 swine. Sixty percent of these isolations were made from the livers of swine necropsied within 1 month after exposure. Microscopic lesions were observed most frequently in lymph nodes, liver, and accessory genital glands and were found in approximately 75 percent of the tissues from which Br. suis was isolated.

There has been no major qualitative difference in the characteristics of the disease produced by the two different biotypes of Br. suis, but quantitative differences have been observed in the effect of various strains on swine.

Research is being continued on the pathogenesis of Br. suis infection in gilts and barrows and on the development of more specific diagnostic tests. Organizations, such as Livestock Conservation, Inc. and individuals are continuing their efforts toward the development of an effective swine identification system.



## INFORMATIONAL AND EDUCATIONAL ACTIVITIES

by  
Subcommittee on Information and Education of the National Brucellosis Committee--  
Herman C. Aaberg, Chairman<sup>1</sup>

This year's informational and educational efforts emphasized four major needs within the co-operative State-Federal brucellosis eradication program.

1. The need to inform all facets of the livestock industry of the development and availability of a new backtag designed to eliminate the needless taking of blood samples from dairy cows previously screened by the milk ring test. The color-coded tag is applied white side up on beef cows; yellow side up on dairy cows.
2. The need to provide each of the 12 noncertified States with an intensified information program to publicize in all printed media their progress in eradicating brucellosis. The U.S. Livestock Sanitary Association has recommended that the Federal Government amend the regulations governing the interstate movement of livestock to provide that effective January 1, 1968, cattle moving into certified areas must originate from certified areas.
3. The need to inform veterinarians and livestock producers that a new test for brucellosis had been developed. Applicable for both cattle and swine, the card test has three primary advantages: (1) Cattle can be worked faster and with less disturbance to them. (2) Results of the test are known within 5 minutes after the blood samples is drawn. (3) The results indicate that an animal is positive to brucellosis or it is negative. In the standard test, it is possible to get three results--positive, negative, and suspect.
4. The need to inform swine producers and swine marketing, slaughtering, and merchandising personnel of the results of a nationwide survey determining the incidence of brucellosis in market-weight hogs and older animals--sows, stags, and boars weighing over 300 pounds. The survey provided the swine industry with its first reliable measure of the seriousness of this problem--less than one-half of 1 percent of the 23,000 hogs blood-tested in more than 200 Federally inspected slaughtering plants during a 6-week period were affected with brucellosis. The recent loss of a 10 million dollar pork export market to West Germany because of the presence of this disease, stimulated interest in a swine brucellosis eradication program.

These significant changes and advancements were given national publicity in the daily press, farm magazines, radio, and television media.

1. Nevada attains a validated brucellosis-free status.
2. Washington, Nevada, and Massachusetts qualify as certified brucellosis-free areas.
3. Federal regulations pertaining to the vaccination of male calves for brucellosis are amended.
4. All States in the New England area have achieved a certified brucellosis-free status.

<sup>1</sup> Director, Marketing Research and Commodity Activities Division, American Farm Bureau Federation. Other members of the Committee are: R. E. Burleson; N. J. Post; H. S. Nicol; C. G. Scruggs and Paul Zillman.

5. USDA's Animal Health Division determines the incidence of swine brucellosis through a nationwide survey of hogs slaughtered at Federally inspected slaughtering establishments.
6. Progress report on the identification and blood testing of market cattle for brucellosis.
7. USDA issues 1966 National Listing of Brucellosis-Free Swine Herds.
8. USDA amends regulations on payment of indemnity for cattle.
9. Seven western States have eradicated brucellosis from 7 of 10 counties.

A publication was prepared entitled "You Can Make a Purse Out of a Sow's Ear" to explain that (1) swine brucellosis was responsible for the loss of a 22.6 million dollar export market; (2) the disease can be eradicated from the Nation's swine; and (3) nine States plus Puerto Rico and the Virgin Islands have eliminated the disease from 127 counties. Three States--Nevada, Utah, and Vermont--plus the Virgin Islands are validated brucellosis-free areas. Several hundred copies of this publication were distributed at the National Pork Producer's Council meeting in Springfield, Ill. The swine brucellosis exhibit entitled "Swine Brucellosis and Human Health" was displayed at this meetings.

Efforts were continued to establish the concept of animal disease eradication. The informational-educational packets developed last year documenting the progress being made in eradicating six major livestock diseases have been made available to vocational agriculture instructors, agriculture extension agents, and other agricultural leaders. Two articles emphasizing the feasibility of disease eradication were reprinted and circulated. One article entitled "Let's Eradicate Animal Disease" appeared in the May 1966 issue of the Nation's Agriculture magazine and was bylined by your chairman of this committee. Another article entitled "We Must Eradicate Animal Disease" was featured in Successful Farming magazine as an interview with Secretary of Agriculture Orville L. Freeman.

To supplement the informational activities in the 12 noncertified States, a fill-in news release service was initiated. Each month when a State makes progress in eradicating brucellosis by commencing area testing in a county or achieving a modified certified brucellosis status for an area, it receives an informational package. This includes a suggested news release plus a map of the State showing the recent progress. To encourage use of the visual, a mat or proof of the map is submitted with the article. To date, Nebraska is making the most extensive use of this service by distributing 225 mats, 20 proofs, and a comparable number of news releases to selected news outlets.

Other routine informational activities were performed such as the development and printing of envelope stuffers, posters, and program aids.

# PROPOSALS BY THE U. S. LIVESTOCK SANITARY ASSOCIATION ON BRUCELLOSIS ERADICATION

by  
J. V. Smith, Chairman<sup>1</sup>

The 17th annual meeting of the USLSA, held October 10-14, 1966, was well attended by livestock personnel and regulatory officials. As in the past, everyone who desired to discuss a problem was given the opportunity to express himself to the fullest extent. The interest shown during these meetings and the discussions that followed have been very helpful to the Committee in preparing this report. The Committee trusts that this interest will continue and, with your advice and recommendations, our goal of brucellosis eradication will be attained.

Since our last meeting, 219 counties have qualified as certified brucellosis-free areas. Also, one State, Iowa, achieved a modified certified status and two States, Massachusetts and Nevada, attained a certified brucellosis-free status. At this time 38 States have achieved the modified certified status. Of these, nine States and the Virgin Islands have gone on to reach the ultimate goal, a brucellosis-free status. There are now a total of 718 free counties.

## Official Vaccinates

The Committee strongly recommends that heifer calves be vaccinated as near 4 months of age as possible because this procedure has the advantages of (1) practically eliminating significant residual vaccinal titers at breeding age and (2) all of the research evidence shows that immunity induced in the animals vaccinated at younger ages is equal to that induced in the animals vaccinated at older ages.

Recent research has revealed that the immunity induced in heifer calves vaccinated at 3 months of age with Strain 19 was equivalent to that in heifers vaccinated older than this age. Furthermore, there is limited evidence that a serviceable immunity can be induced in heifer calves vaccinated as young as 2 months of age.

Therefore, this Committee recommends that the minimum official vaccination age be lowered from 4 to 3 months.

## Recommended Age for Testing Official Vaccinates

The Committee revised comments received from the beef cattle industry relative to the age "limits" that official vaccinates should be initially tested. In view of the Committee's recommendation that heifer calves can be officially vaccinated as young as 3 months of age, the

<sup>1</sup> State Veterinarian, Hartford, Conn. Other members of the committee are J. R. Bishop, Tipton, Ind.; G. B. Estes, Richmond, Va.; W. D. Knox, Fort Atkinson, Wis.; A. E. Janawicz, Montpelier, Vt.; C. A. Manthei, Ames, Iowa; S. H. McNutt, Madison, Wis.; E. A. Schilf, Springfield, Va.; A. O. Wilson, Hysham, Mont.; C. E. Burch, Albany, N. Y.; J. B. Finley, Encinal, Tex.; D. E. Flagg, Bismarck, N. Dak.; R. Larramore, Gillette, Wyo.; R. J. McClenaghan, Ottawa, Canada; J. O. Pearce, Okeechobee, Fla.; W. C. Tobin, Denver, Colo.; and H. G. Wixom, Sacramento, Calif.



lowering of the initial testing age of official vaccinates should become effective at a reasonable date in the future. The Committee believes that the proposed date of January 1, 1970, is a reasonable one because it gives the cattle industry ample time to initiate and carry out a program of younger age vaccination. If this program is begun immediately, lowering the initial testing age of official vaccinates would not cause a hardship for the cattle owner, since heifers vaccinated before July 1, 1967, will not be affected by the proposed effective date. Moreover, this regulation will facilitate the removal of most pregnant infected vaccinated heifers from circulation before they have an opportunity to spread brucellosis.

In the interest of sound brucellosis eradication procedures, the Committee felt obligated to recommend that officially vaccinated heifers of the beef breeds be tested at 24 months of age and those of the dairy breeds at 20 months of age, after January 1, 1970.

### Length of Quarantine

In the light of recent information from the field relative to infected herds, it is evident that the incubation period is frequently greater than 30 days. It is, therefore, recommended that an infected herd be maintained in quarantine until tested negative not less than 60 days after removal of the reactor animal. The Committee strongly recommends that each State take the necessary action to comply with this recommendation.

### Interstate Movement of Cattle

The Committee again expressed its concern about the hazards associated with movements of cattle from noncertified areas. We commend the noncertified States for the progress that has been made by the counties in these areas. We encourage the remaining noncertified counties to intensify their efforts to achieve a modified certified brucellosis status by January 1, 1968.

### Card Test

The card test was approved at the 1965 meeting as a screening procedure pending the receipt of additional data on the results of use of the test. Reports of use of the card test in the field as well as controlled studies were presented for review. State officials from several noncertified States indicated that use of this procedure was the only method which would provide the means for achieving modified certified brucellosis status by January 1, 1968. On the basis of the foregoing information, the Committee recommends that the card test be approved as an official test for brucellosis.

This test is to be applied only by authorized personnel under direction of the State Veterinarian. Each test performed must be reported to the State Veterinarian immediately for permanent record accompanied by the supporting test card.

### Indian Reservations and National Parks

This Committee recommends that all cattle and bison individually owned by Indians and/or under Tribal or Federal control, be immediately brought into compliance with State and Federal regulations as prescribed in the Uniform Methods and Rules for the control and eradication of brucellosis in domestic cattle.

## Brucellosis in Bison

Whereas, the present Federal Law and Regulations pertaining to the control and eradication of brucellosis have been developed over many years, based on the cooperation of the States and the State cattlemen.

Whereas, the grazing of bison is becoming more frequent and bison is increasing in numbers.

Whereas, the management of a herd of bison is in many ways different than the management of a herd of cattle.

Whereas, the control of brucellosis is important in the herds of bison in this country.

Therefore, be it resolved: that a program for the control of brucellosis in bison be established that would certify bison herds according to the Uniform Methods and Rules for domestic cattle.

## Strain 19

There have been requests by State officials that there be a re-evaluation of the maximum and minimum dosage of Brucella abortus Strain 19 vaccine necessary to produce a serviceable resistance to the disease. In the interval it is recommended that vaccine purchased from public funds have a maximum viability count of not more than 15 billion and not less than 10 billion. Br. abortus Strain 19 organisms per milliliter and that further research be conducted to determine the minimum number of organizations to provide a serviceable resistance.

## Swine Brucellosis

Swine brucellosis eradication is not progressing as rapidly as the bovine brucellosis eradication program.

The loss of foreign markets because of the presence of brucellosis in our swine herds is of economic significance.

It is recommended that:

1. Uniform methods and Rules for Porcine brucellosis eradication be applied in all States.
2. Federal regulations be considered to require on or after January 1, 1968, breeding swine moved interstate be from validated brucellosis-free herds only.
3. All breeding swine consigned to slaughter be identified and tested for brucellosis.
4. The U.S. Department of Agriculture and the States provide indemnity funds for swine found to be infected or exposed to brucellosis.
5. State and Federal funds be provided to augment these recommendations.

It is further recommended that the swine industry organizations be encouraged to establish swine brucellosis committees to make recommendations to the Brucellosis Committee of the USLSA.

## Certification Testing Period

There has been a difficulty in completing the blood testing of the herds not adequately screened by BRT or market cattle testing within the 18-month period now prescribed for establishing certified brucellosis-free areas. It is, therefore, the recommendation of the Committee that the period of time for the blood testing of herds not adequately screened should be not less than 18 months nor more than 24 months for purposes of certification or recertification of brucellosis-free areas.

# RECOMMENDATIONS OF THE NATIONAL BRUCELLOSIS COMMITTEE

by  
C. G. Scruggs, Chairman<sup>1</sup>

The National Brucellosis Committee recommends:

1. That the National Brucellosis Committee reaffirm the national goals of all States being modified certified by January 1, 1968, that all States being certified brucellosis free in cattle by 1972 and that all States being brucellosis free in all species by 1975.
2. That Livestock Conservation, Inc., implement the National Brucellosis Committee resolution of 1966 regarding livestock identification and consider the creation of a national task force to assist in the creation of and use of a practical program of maintaining the identity of animals from their premises of origin through marketing and slaughtering. Every effort should be made to encourage livestock markets to use the recently improved two-color backtag as a sales tag.
3. Endorsement of reducing the minimum age of official calfhood vaccination to 3 months. When effected by the U.S. Department of Agriculture, we ask Livestock Conservation, Inc., to use all its publicity resources to make the authorization a reality in practice on the farms and ranches in the United States.
4. Chairman Scruggs write Secretary Freeman, Senator Ellender, Senator Holland, Representative Poage, and Representative Whitten informing them of the National Brucellosis Committee's and the industry's appreciation of the government's exemplary and constructive service in eradicating brucellosis, emphasizing the great gains to human and animal health and our dedication to total brucellosis eradication.
5. The National Brucellosis Committee recommends that all States take immediate action to assure that swine brucellosis is a reportable disease, all swine on infected premises be maintained in quarantine, and movement of swine from infected premises to slaughter be accompanied by a permit. All States are encouraged to initiate market swine testing programs during 1967 for eradication of brucellosis. The purpose being not only to eradicate brucellosis but to improve the economic position of the industry.
6. During 1967, the chairman will study and evaluate the corporate and organizational structure of the National Brucellosis Committee. We ask that he bring to the 1968 meeting recommendations regarding:
  1. The maintenance, modification, or disoloution of the corporate structure.
  2. The purpose and function of the National Brucellosis Committee at this stage in the eradication effort.
  3. The role of standing and special subcommittees.
  4. The relationship of the National Brucellosis Committee, the U.S. Livestock Sanitary Association, and Livestock Conservation, Inc., and the role of the respective groups in implementing National Brucellosis Committee policies.

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<sup>1</sup> Chairman of the National Brucellosis Committee and Vice-President and Editor of the Progressive Farmer magazine, Dallas, Tex.



## NOMINATING COMMITTEE REPORT

The Nominating Committee of the National Brucellosis Committee composed of members of the Executive Committee presented the following slate of officers all of whom were elected for terms designated by the Committee.

<u>Officers</u>	<u>Executive Committee</u>	<u>Board of Directors</u> (1967-1970)
Chairman: Charles G. Scruggs	Herman Aaberg	Herman Aaberg
Vice-Chairman: Bob Laramore	J. W. Ralph Bishop	J. W. Ralph Bishop
	W. J. Knox	Oral D. Corson
	Bob Laramore	James R. Hay
Secretary: R. Harvey Dastrup	C. A. Manthei	N. B. McCullough
	Wm. Rothenberger	Wm. Rothenberger
Assistant Secretary: Mike Bay	E. A. Schilf	Charles G. Scruggs
	R. E. Sneddon	James H. Steele
	J. H. Steele	

## YOUR STATE--FEDERAL ANIMAL HEALTH OFFICIALS

If you desire more detailed information on the brucellosis eradication program in your State, please contact the Federal Veterinarian in Charge, Animal Health Division, or the State Official in Charge of the animal disease program. Their addresses are listed below.

<u>State or Territory</u>	<u>Federal Veterinarian in Charge</u>	<u>State Official</u>
Alabama	A. G. Pass P. O. Box 1749 Montgomery, Ala. 36104	John G. Milligan P. O. Box 220 Montgomery, Ala. 36101
Alaska	Harold D. White Rooms 60-61, Federal Bldg. Anchorage, Alaska 99501	Fred S. Honsinger P. O. Box 2473 Juneau, Alaska 99801
Arizona	Ted Rea P. O. Box 7397 4004 North 7th Street Phoenix, Ariz. 85011	L. N. Butler 1521 W. Jefferson Phoenix, Ariz. 85007
Arkansas	Paul Becton P. O. Box 3548 Room 5506, Federal Bldg. Little Rock, Ark. 72203	R. M. Thomas State Police Headquarters Ground P. O. Box 2821 Little Rock, Ark. 72203
California	J. H. Wommack Room 4506 650 Capitol Ave. Sacramento, Calif. 95814	H. G. Wixom, Chief Division of Animal Industry 1220 N Street Sacramento, Calif. 95814
Colorado	E. S. Cox 300 New Customhouse Bldg. Denver, Colo. 80202	William C. Tobin Room 420 1525 Sherman Street Denver, Colo. 80203
Connecticut	W. C. Ferrall Room 258-262 State Office Bldg. Hartford, Conn. 06115	Jean V. Smith Room 287 State Office Bldg. Hartford, Conn. 06115
Delaware	Dale Schwindaman State Board of Agr. Bldg. P. O. Drawer D Dover, Del. 19901	E. L. Symington State Board of Agr. Dover, Del. 19901

<u>State or Territory</u>	<u>Federal Veterinarian in Charge</u>	<u>State Official</u>
Florida	J. B. Healy P. O. Box 4129 240 P. O. Bldg. Jacksonville, Fla. 32201	C. L. Campbell P. O. Box 1509 Tallahassee, Fla. 32302
Georgia	C. J. Mikel Room 410, Bona Allen Bldg. 133 Luckie St., N. W. Atlanta, Ga. 30303	O. B. Dye, Director Veterinary Division Capitol Square Atlanta, Ga. 30334
Hawaii	E. G. Ongert 1481 South King St. Room 436 Honolulu, Hawaii 96814	Ernest H. Willers State Veterinarian P. O. Box 5425 Pawaa Station Honolulu, Hawaii 96814
Idaho	A. P. Schneider, Director Idaho State-Federal Coop. Livestock Regulatory Programs 716 Idaho Street Boise, Idaho 83702	A. P. Schneider (Same)
Illinois	Milo Johnson P. O. Box 2149 100½ East Washington St. Springfield, Ill. 62701	Paul B. Doby Emerson Bldg. State Fair Grounds Springfield, Ill. 62701
Indiana	L. R. Barnes 311 West Washington St. Room 210 Indianapolis, Ind. 46204	David L. Smith 801 State Office Bldg. 100 North Senate Ave. Indianapolis, Ind. 46204
Iowa	G. E. Blake 1115 Grand Avenue Des Moines, Iowa 50309	M. E. Pomeroy State Veterinarian State House Des Moines, Iowa 50319
Kansas	D. O. Manley P. O. Box 1518, Room 700 Capitol Federal Bldg. Topeka, Kans. 66601	A. G. Pickett Livestock Sanitary Commissioner State Office Bldg. Topeka, Kans. 66612
Kentucky	L. T. Fisher P. O. Box 399 105½ St. Clair St. Frankfort, Ky. 40601	R. J. Henshaw, Acting State Veterinarian Capitol Annex Frankfort, Ky. 40601



<u>State or Territory</u>	<u>Federal Veterinarian in Charge</u>	<u>State Official</u>
Louisiana	F. E. Henderson 1755 Florida St. 302 Audubon Bldg. Baton Rouge, La. 70821	F. B. Wheeler P. O. Box 4003 Capitol Station Baton Rouge, La. 70821
Maine	C. W. Wilder U.S. Post Office & Federal Bldg. Augusta, Maine 04330	Francis G. Buzzell, Director State Office Annex Augusta, Maine 04331
Maryland	J. K. Atwell Room 510, Hartwick Bldg. 4321 Hartwick Road College Park, Md. 20740	T. A. Ladson, Director Md. Livestock Sanitary Service Symons Hall, Univ. of Maryland College Park, Md. 20740
Massachusetts	W. C. Ferrall, Acting Vet. in Charge, ANH (Mass. & Rhode Island) Room 258-262 State Office Bldg. Hartford, Conn. 06115	Edward M. Dwyer, Director Division of Livestock Disease Control 41 Tremont St. Boston, Mass. 02108
Michigan	C. L. Hendee Sixth Floor Lewis Cass Bldg. Lansing, Mich 48913	John F. Quinn, State Veterinarian Sixth Floor Lewis Cass Bldg. Lansing, Mich. 48913
Minnesota	D. F. Werring 555 Wabasha St. St. Paul, Minn. 55102	J. G. Flint, Secretary and Executive Officer 1246 University Ave. St. Paul, Minn. 55104
Mississippi	L. J. Pate P. O. Box 1120 590 Milner Bldg. Corner Lamar & Pearl Streets Jackson, Miss. 39205	Vernon D. Chadwick, State Veterinarian P. O. Box 916 Jackson, Miss. 39205
Missouri	L. F. Van Gorder P. O. Box 1027 Jefferson City, Mo. 65102	G. C. Stiles, State Veterinarian P. O. Box 630 Jefferson Bldg., 13th Floor Jefferson City, Mo. 65102
Montana	J. H. Slack 200 Steamboat Block 616 Helena Ave. Helena, Mont. 59601	John W. Safford, State Veterinary Surgeon Livestock Bldg. Capitol Station Helena, Mont. 59601

<u>State or Territory</u>	<u>Federal Veterinarian in Charge</u>	<u>State Official</u>
Nebraska	E. H. Nordstrom P. O. Box 1866 303 Farmers Mutual Ins. Bldg. 1220 "J" St. Lincoln, Nebr. 68501	Stanley Flora Room 1124-26 State Capitol Building Lincoln, Nebr. 68501
Nevada	E. M. Joneschild 1395 Haskell St., Suite B Reno, Nev. 89502	John L. O'Harra, Director P. O. Box 1209 Reno, Nev. 89502
New Hampshire	C. W. Wilder U.S. Post Office & Fed. Bldg. Augusta, Maine 04330	Clarence B. Dearborn Room 102, State House Annex Concord, N. H. 00331
New Jersey	R. L. Alkire Room 201C Health and Agricultural Bldg John Fitch Plaza Trenton, N. J. 08605	E. L. Brower John Fitch Plaza South Warren St. P. O. Box 1888 Trenton, N. J. 08605
New Mexico	R. L. Pyles P. O. Box 464 4010 New Fed. Office Bldg. 517 Gold Ave., S.W. Albuquerque, N. Mex. 87103	J. E. Kleck Box 1296 113 Third St., S.W. Albuquerque, N. Mex. 87103
New York	Dale Suplee Building 8, State Campus Albany, N. Y. 12226	Grant S. Kaley, Director Building 8, State Campus Albany, N. Y. 12226
North Carolina	W. W. Harkins 320 Agricultural Bldg. Raleigh, N. C. 27603	Thomas F. Zweigart P. O. Box 670 323 Agricultural Bldg. Raleigh, N. C. 27602
North Dakota	G. W. Spangler P. O. Box 639 220 East Rosser Ave. Bismarck, N. Dak. 58502	Dean E. Flagg State Capitol Bldg. Bismarck, N. Dak. 58502
Ohio	Paul H. Kramer 438 Old Post Office Bldg. Third & State Streets Columbus, Ohio 43215	Harry E. Goldstein Room 720 Ohio Department Bldg. 65 South Front St. Columbus, Ohio 43215
Oklahoma	L. N. Miller 5411 New Federal Bldg. 200 Northwest 4 Oklahoma City, Okla. 73102	J. H. Brashear 122 State Capitol Bldg. Oklahoma City, Okla. 73102

<u>State or Territory</u>	<u>Federal Veterinarian in Charge</u>	<u>State Official</u>
Oregon	O. J. Halverson 1178 Chemeketa, N. E. Salem, Oreg. 97310	Glen B. Rea, Chief Veterinary Division Oregon Dept. of Agr. Salem, Oreg. 97310
Pennsylvania	G. T. Mainwaring P. O. Box 2065 2301 N. Cameron St. Harrisburg, Pa. 17108	J. C. Shook, Director Bureau of Animal Industry Room 408 2301 N. Cameron St. Harrisburg, Pa. 17108
Rhode Island	W. C. Ferrall, Acting Vet. in Charge, ANH (Mass. & Rhode Island) Room 258-262 State Office Bldg. Hartford, Conn. 06115	T. J. Grennan, Jr., Chief Division of Animal & Dairy Industry 365 State Office Bldg. Providence, R. I. 02903
South Carolina	C. E. Boyd, Director State-Federal Livestock Disease Erad. Program P. O. Box 1771 Columbia, S. C. 29202	C. E. Boyd (Same)
South Dakota	H. P. Honstead P. O. Box 758 Pierre, S. Dak. 57501	M. D. Mitchell, Executive Secretary State Office Bldg. Pierre, S. Dak. 57501
Tennessee	W. W. Bird P. O. Box 510 Nashville, Tenn. 37202	C. E. Kord P. O. Box 9039 Melrose Station Nashville, Tenn. 37202
Texas	J. L. Wilbur, Jr. Third Floor Western Republic Life Bldg. Austin, Tex. 78701	S. B. Walker Texas Animal Health Comm. New State Office Bldg. Austin, Tex. 78701
Utah	J. E. Rasmussen P. O. Box 11429 5237 Federal Bldg. 125 South State St. Salt Lake City, Utah 84111	Hendrik Versluis Room 412-A State Capitol Bldg. Salt Lake City, Utah 84114
Vermont	C. W. Wilder, Acting Vet. in Charge, ANH (Vermont) U.S. Post Office & Federal bldg. Augusta, Maine 04330	A. E. Janawicz, Director Vermont Livestock Division Department of Agriculture Montpelier, Vt. 05602



<u>State or Territory</u>	<u>Federal Veterinarian in Charge</u>	<u>State Official</u>
Virginia	E. C. Roukema 144 East Main St., Room 204 Richmond, Va. 23219	W. L. Bendix, Director 203 N. Governor St. Richmond, Va. 23219
Washington	H. C. King P. O. Box 87 205 Union Ave. Bldg. Olympia, Wash. 98501	D. H. Spangler, Acting Supervisor Div. of Animal Industry P. O. Box 120 Olympia, Wash. 98501
West Virginia	L. G. Berg 3404 Federal Office Bldg. 500 Quarrier St. Charleston, W. Va. 25301	T. P. Siburt, Director Room E, 102 Capitol Bldg. Charleston, W. Va. 25301
Wisconsin	A. A. Erdmann, Chief Vet. State-Federal Coop. Program Hill Farms State Office Bldg. 4802 Sheboygan Ave. Room B 280 Madison, Wis. 53702	A. A. Erdmann (Same)
Wyoming	W. M. Reynolds P. O. Box 825 1414 East 13th St. Cheyenne, Wyo. 82001	R. I. Port State Office Bldg. Cheyenne, Wyo. 82001
Puerto Rico	R. W. Gerding Animal Health Division USDA-ARS G.P.O. Box 3488 San Juan, P. R. 00936	Miguel A. Hernandez Agosto Secretary of Agriculture and Commerce P. R. Department of Agricul- ture and Commerce San Juan, Puerto Rico 00936



